NAVAL AIR TRAINING COMMAND

NAS CORPUS CHRISTI, TEXAS **CNATRAINST 1542.167**
CIN Q-2A-0396, Q-2A-0392, Q-2A-0397 **18 SEP 2010**

CHIEF OF NAVAL AIR TRAINING

T-45 COMBINED MULTI-SERVICE PILOT TRAINING SYSTEM

2010

DEPARTMENT OF THE NAVY
CHIEF OF NAVAL AIR TRAINING
250 LEXINGTON BLVD SUITE 102
CORPUS CHRISTI TX 78419-5041

CNATRAINST 1542.167
N715
18 Sep 10

CNATRA INSTRUCTION 1542.167

Subj: T-45 COMBINED MULTI-SERVICE PILOT TRAINING SYSTEM

1. Purpose. To publish the curriculum for training Student Military Aviators (SMA) in the Intermediate Jet, Advanced Strike and Intermediate E-2/C-2 phases of training.

2. Cancellation. CNATRAINST 1542.159 will be canceled when the last student finishes in the curriculum.

3. Action. This curriculum is effective on receipt. No changes will be made without written authorization by the Chief of Naval Air Training (CNATRA).

4. Forms. The CNATRA-GEN forms required by this directive are available on the CNATRA website https://www.cnatra.navy.mil/pubs/forms.htm. These forms may be saved to your computer and filled out prior to printing or printed blank. The forms shall not be altered or modified. If changes are desired, a change request shall be submitted to CNATRA. Aviation Training Forms (ATFs) for this curriculum are computer-generated by the Training Integration Management System (TIMS) and are not stocked in hard copy. The CNATRA POC is CDR Tedd N. Muery, N715, DSN 861-3895 and FAX DSN 861-1795.

Thomas E. Broderick
THOMAS E. BRODERICK
Chief of Staff

LARGE FORMAT (8.5 X 11)
Distribution:
CNATRAINST 5215.1S
List I (A, B(5), T, U(10))

Copy to:
CNO (N00T)
CMC
NETC
NAVAIRWARCENTRASYSDIV Orlando

CNATRA N5
CNATRA N734
CNATRA DET Corpus Christi
CNATRA DET Meridian
NETSAFA
DLIELC/LEACS
8TH FTS, VANCE AFB OK
COMTRAWING TWO (COOP File)
COMTRAWING ONE COURSE CURRICULUM COORDINATOR (2)
COMTRAWING TWO COURSE CURRICULUM COORDINATOR (2)
CLS CONTRACT HOLDER
   NAS Kingsville (7)

SMALL FORMAT 5.5 X 8.5
CNATRA Distribution:
CNATRA N715 (5) PLUS ORIGINALS
TRAWING ONE PAT PUB COORDINATOR (150)
TRAWING TWO PAT PUB COORDINATOR (150)
FTSC (3)

LIST OF EFFECTIVE PAGES

Original 18 Sep 2010

Total number of pages is 394 consisting of the following:

Page Number	Issue
VII-17	1
VII-18 – VII-27	0
VII-28	1
VII-29 – VII-38	0
VIII-1	1
VIII-2 – VIII-9	0
VIII-10 – VIII-12	1
VIII-13 – VIII-41	0
VIII-42 – VIII-45	1
VIII-46	0
VIII-47	1
VIII-48	0
VIII-49	1
VIII-50	0
VIII-51	1
VIII-52 – VIII-57	0
VIII-58	1
VIII-59	0
VIII-60	1
VIII-61 – VIII-71	0
VIII-72	1
VIII-73 – VIII-77	0
VIII-78	1
VIII-79 – VIII-80	0
VIII-81	1
VIII-82 – VIII-83	0
VIII-84	1
VIII-85	0
VIII-86	1
VIII-87	0
VIII-88	1
VIII-89 – VIII-92	0
IX-1 – IX-11	0
IX-12	1
IX-13 – IX-31	0
IX-32 – IX-40	1
X-1 – X-4	0

TABLE OF CONTENTS

CHAPTER V. INSTRUMENT TRAINING

CHAPTER IX. COURSE TRAINING STANDARDS

CHAPTER X. MASTER MATERIALS LIST

SUMMARY OF CHANGES

CHANGE NUMBER	DATE OF CHANGE	CHANGE DESCRIPTION	PAGES AFFECTED/ INITIALS
1	8/25/11	Incorporated	3-4, iv-v, vii, xiv-xxii Chapter I pages: 9, 13-18, 30-34 Chapter IV pages: 2, 4, 5, 14, 20-25, 36, 38, 40, 41, 51, 55, 56, 59, 62 Chapter V pages: 3, 4, 9, 26, 30-36, 39, 50, 57, 58, 60, 71 Chapter VII pages: 2, 3, 13, 17, 28 Chapter VIII pages: 1, 10, 11, 12, 42-45, 47, 49, 51, 58, 60, 72, 78, 81, 84, 86, 88 Chapter IX pages: 12, 32-40

BLANK PAGE

COURSE DATA

1. Course Title. T-45 Combined Multi-Service Pilot Training System (MPTS).

2. Course ID Number (CIN). Intermediate Jet, Q-2A-0396; Intermediate E-2/C-2, Q-2A-0392, and Advanced Strike, Q-2A-0397.

3. Location(s). Naval Air Station, Meridian, Mississippi, and Naval Air Station, Kingsville, Texas.

4. Course Status. Active.

5. Course Mission. T-45 Combined Multi-service Pilot Training System is designed to provide commissioned officers in the U.S. Navy, U.S. Marine Corps, and selected foreign nationals with further training in areas associated with tactical jet aircraft and to develop airmanship skills prerequisite for transition to operational fleet aircraft.

6. Prerequisite Training. Successful completion of MPTS Primary Curriculum: Q-2A-0108 or T-6 Joint Primary Pilot Training (JPPT), P-V4A-J, or T-6B Joint Primary Pilot Training, Q-2A-0217.

7. Security Clearance Requirements. None.

8. Follow-on Training. Designated Fleet Replacement Squadron or Advanced E-2/C-2 training.

9. Course Length. Overall time-to-train calculated in accordance with CNATRAINST 1550.6E. Training Days account directly or provide margin for factors including weather, personnel and equipment availability, briefing and preparation time, and historical delays. Calendar Weeks further account for weekends, holidays, safety stand-downs, and other expected non-working days throughout the year.

	TW-1 Training Days	TW-1 Calendar Weeks
Intermediate Jet:	127.5	28.3
Intermediate E-2/C-2:	27.6	6.1
Advanced Strike:	103.2	22.9

	TW-2 Training Days	TW-2 Calendar Weeks
Intermediate Jet:	124.2	27.5
Intermediate E-2/C-2:	26.1	5.8
Advanced Strike:	99.0	22.0

10. Class Capacity. Variable.

11. Instructor Requirements. As established by Chief of Naval Operations (CNO) planning factors.

12. Course Curriculum Model Manager. Commander, Training Air Wing TWO (COMTRAWING TWO).

13. Quota Management Authority. Chief of Naval Air Training

14. Quota Control. Chief of Naval Operations

15. Course Training Subjects

a. Ground Training

INTERMEDIATE JET GROUND TRAINING		
Stage	**Symbol**	**Hours**
Aviation Student Indoctrination	ASI01*	7.7
Engineering	ENG01	33.2
Aerodynamics	AER01	7.5
Meteorology	MET01	4.8
Instrument Navigation	NAV01	13.0
Totals		**66.2**

*ASI0101-10

ADVANCED STRIKE GROUND TRAINING		
Stage	**Symbol**	**Hours**
Aviation Student Indoctrination	ASI01*	7.8
Operational Navigation Ground School	ON01	20.5
Total		**28.3**

*ASI0101-11

E-2/C-2 GROUND TRAINING		
Stage	**Symbol**	**Hours**
Aviation Student Indoctrination	ASI01*	7.8
Total		**7.8**

*ASI0101-10 and ASI0112

b. Flight Support

INTERMEDIATE JET FLIGHT SUPPORT		
Stage	**Symbol**	**Hours**
Crew Resource Management	CRM11	3.0
Operational Risk Management	ORM11	1.0
NACES Flight Physiology	SEA11	3.0
Cockpit Orientation	CO11	7.3
Emergency Procedures	EP11	14.5
BI/RI Course Rules	CR11	0.5
Course Rules	CR12	4.0
Familiarization Flight Procedures	FAM11	7.7
Out-of-Control Flight (OCF) Procedures	OCF11	2.0
NATOPS/NATOPS Examinations	NA11	6.0
Night Familiarization Flight Procedures	NFM11	3.5
Basic Instruments Flight Procedures	BI11	10.5
Radio Instruments Flight Procedures	RI11	10.5
Instrument Rating Flight Procedures	IR11	4.0
Section Formation Flight Procedures	FRM11	5.5
Division Formation Flight Procedures	DIV11	2.5
Tactical Formation Flight Procedures I	TAC11	2.0
Field Carrier Landing Practice (FCLP) Flight Procedures	FCL11	2.5
Total		**90.0**

ADVANCED STRIKE FLIGHT SUPPORT		
Stage	**Symbol**	**Hours**
Operational Navigation Flight Procedures	ON11	3.7
Two-Plane ON Flight Procedures Procedures	ON12	2.9
Weapons Flight Procedures	STK11	4.7
Night Formation Flight Procedures	NFR11	2.2
Advanced Tactical Formation Flight Procedures	TAC12	2.0
1 V 1 Basic Fighter Maneuvering Procedures	BFM11	4.6
2 V 1 Section Engaged Maneuvers Flight Procedures	SEM11	3.7
Carrier Qualification Landing Flight Procedures	CQL11	6.0
Total		**29.8**

INTERMEDIATE E-2/C-2 FLIGHT SUPPORT		
Stage	**Symbol**	**Hours**
Carrier Qualification Landing Flight Procedures	CQL11	6.0
Total		**6.0**

c. Flight/Simulator Training Summary. The programmed times for each phase, stage, and media are:

INTERMEDIATE JET								
Flight/Events	IFT		OFT		T-45C			
					Dual		Solo	
	Flts	Hrs	Flts	Hrs	Flts	Hrs	Flts	Hrs
CO	4	6.0						
EP	4	5.2						
BI	9	13.5			3	4.5		
RI	3	4.5	5	7.5	6	9.6		
AN	2	3.0	5	7.3	5	8.0		
FAM			9	13.3	12	14.1	1	1.2
OCF			1	1.5	1	0.7		
FRM			4	5.8	11	16.1	2	2.7
DIV					4	6.0	1	1.4
NFM			1	1.5	2	3.0	1	1.3
IR	1	1.5	3	4.5	3	4.8		
TAC					3	3.6	1	1.3
FCL			2	2.8	2	1.4	6	3.6
Totals	**23**	**33.7**	**30**	**44.2**	**52**	**71.8**	**12**	**11.5**

ADVANCED STRIKE								
Flight/Events	IFT		OFT		T-45C			
					Dual		Solo	
	Flts	Hrs	Flts	Hrs	Flts	Hrs	Flts	Hrs
AN			2	3.0	4	5.9	2	2.4
ON			3	3.9	10	12.5	1	1.2
STK			7	7.9	6	6.6	3	3.3
NFR			2	2.4	2	3.0	1	1.3
TAC					4	4.8	1	1.2
BFM			1	1.0	8	8.8	4	4.4
SEM					3	3.3	1	1.1
CQL			3	4.3	1	0.7	13	11.4
Totals	**0**	**0.0**	**18**	**22.5**	**38**	**45.6**	**26**	**26.3**

INTERMEDIATE E-2/C-2								
Flight/Events	IFT		OFT		T-45C Dual		T-45C Solo	
	Flts	Hrs	Flts	Hrs	Flts	Hrs	Flts	Hrs
FAM					2	1.4		
FRM					1	1.5		
NFM					1	0.8		
CQL			3	4.3	1	0.7	13	11.4
Totals	**0**	**0.0**	**3**	**4.3**	**5**	**4.4**	**13**	**11.4**

16. Training Preparation Time. In addition to the hours formally planned for classes, simulators, and flights, significant additional time to prepare and study should be expected outside of scheduled training hours. This range will vary depending on the complexity of the material and individual student's needs, and may be up to several hours per event. For simulator and flight events, specific brief and debrief times will be programmed into TIMS and accounted for on the flight schedule, per the following table:

ADDITIONAL TRAINING TIME PER CURRICULUM HOUR/EVENT				
Training Area	Brief/Preflight	Prep Study	Debrief	Total
Flight	1.75	2.0	1.0	4.75
Simulator/CPT	0.50	2.0	0.5	3.0

17. Physical Requirements. As specified in the Manual of Medical Department, Chapter 15, and all applicable anthropometric standards.

18. Obligated Service. Refer to MILPERSMAN for Naval personnel.

19. Primary Instructional Methods. Lecture, Computer-Assisted Instruction (CAI), self- and group-paced study, and in-flight instruction.

20. Preceding Curriculum Data. This curriculum replaces CNATRAINST 1542.159 CH-1, CH-2, CH-3, CH-4, CH-5, and CH-6.

21. Student Performance Measurement/Application of Standards. The standards outlined in Chapter IX, Course Training Standards, are used to evaluate Student Naval Aviator (SNA) performance of individual items and maneuvers. Final judgment regarding the satisfactory performance of any flight maneuver rests with the Instructor Pilot who must assess the environmental and systems factors affecting the conditions under which the performance is measured and the SNA's experience within the stage.

22. Summary of Lead/Chase Overhead. The summary of the Instructor Lead/Chase planning factor hours for the T-45 Combined Multi-Service Pilot Training System are tabulated below. The tables are a compilation of the events requiring Instructor Chase that can be found in Chapters IV through VIII of this publication.

INTERMEDIATE JET				
Flight/Event	**# Events**	**Lead/Chase Hrs/Event**	**# of Students per Chase**	**Hrs/ Student**
FRM41	5	1.3	1	6.50
FRM42	1	1.2	1	1.20
FRM44	4	1.2	1	4.80
FRM45	1	1.1	1	1.10
DIV41	4	1.3	2	2.60
DIV42	1	1.3	2	0.65
NFM42	1	1.1	3	0.37
TAC41	3	1.0	1	3.00
TAC42	1	1.1	1	1.10
Totals	**21**	**10.6**	**13**	**21.32**

ADVANCED STRIKE				
Flight/Event	**# Events**	**Lead/Chase Hrs/Event**	**# of Students per Chase**	**Hrs/ Student**
ON43	1	1.0	2	0.50
ON44	1	1.0	2	0.50
STK41	4	1.0	3	1.33
STK42	2	1.0	3	0.67
STK43	1	1.0	3	0.33
STK44	1	1.0	3	0.33
STK45	1	1.0	3	0.33
NFR41	2	1.3	1	2.60
NFR42	1	1.1	1	1.10
TAC43	4	1.0	1	4.00
TAC44	1	1.0	1	1.00
BFM43	3	1.0	1	3.00
BFM44	1	1.0	1	1.00
BFM45	2	1.0	1	2.00
BFM46	2	1.0	1	2.00
BFM47	1	1.0	1	1.00
BFM48	1	1.0	1	1.00
SEM41	3	1.0	2	1.50
SEM42	1	1.0	2	0.50
CQL44	1	4.2	6/4	2.80
Totals	**34**	**23.6**	**34.5**	**27.49**

INTERMEDIATE E-2/C-2				
Flight/Event	**# Events**	**Lead/Chase Hrs/Event**	**# of Students per Chase**	**Hrs/ Student**
FRM46	1	1.3	1	1.30
CQL44	1	4.2	6/4	2.80
Totals	**2**	**5.5**	**2.5**	**4.10**

NOTE: Lead/Chase Hours per Event are approximate and are derived by subtracting 0.2 hours from the student event length for all events except BFM, STK, and SEM, where Lead/Chase Hours are 0.1 hours less than student event length. This accounts for student touch-and-goes while the lead full-stops first pass.

ABBREVIATIONS

The following is a list of abbreviations used in the curriculum:

ACP	-	Armament Control Panel
ADC	-	Air Data Computer
ADI	-	Attitude Director Indicator
AGL	-	Above Ground Level
AOA	-	Angle of Attack
AS	-	Airspeed
ASR	-	Airport Surveillance Radar
ATC	-	Air Traffic Control
ATF	-	Aviation Training Form
ATJ	-	Aviation Training Jacket
ATS	-	Aviation Training Summary
AW	-	Attack Window
AWE	-	Attack Window Entry
BQ	-	Boat Qualification
BVR	-	Beyond Visual Range
CAI	-	Computer-Assisted Instruction
CCIP	-	Continuously Computed Impact Point
CDI	-	Course Deviation Indicator
CEP	-	Circular Error Probability
CNI	-	Communication, Navigation, and Identification

CONTR AUG - Control Augmentation

CRM - Crew Resource Management

CQL - Carrier Qualification Landing

CTS - Course Training Standard

CV - Carrier

CWS - Centralized Warning System

DACM - Defensive Air Combat Maneuver

DBFM - Defensive Basic Fighter Maneuvering

DBT - Defensive Break Turn

DEU - Display Electronics Unit

DF - Direction Finder

DME - Distance Measuring Equipment

DP - Departure Procedure (Instrument)

DR - Dead Reckoning

ECA - Engine Control Amplifier

ECS - Environment Control System

EDP - Engine Driven Pump

EMER - Emergency

EOB - End of Block

EP - Emergency Procedure

ET - Extra Training

FC - Front Cockpit - Fly in front cockpit with a qualified flight instructor onboard providing instruction, assistance, or supervision.

FCLP - Field Carrier Landing Practice

FP - Flight Procedures

FPC - Final Progress Check

FSL - Front-Seat Landing

FTI - Flight Training Instruction

GCA - Ground Controlled Approach

GINA - GPS/Inertial Navigation Assembly

GLOC - "G" Induced Loss of Consciousness

GPS - Global Positioning System

GTS - Gas Turbine Starter

Guns D - Guns Defense

H - Hooded

HA BFM - High-Aspect Basic Fighter Maneuvering

HSI - Horizontal Situation Indicator

HUD - Head-Up Display

HYD - Hydraulics

IFF - Identification Friend or Foe

IFLOLS - Improved Fresnel Lens Optical Landing System

IFR - Instrument Flight Rules

IFT - Instrument Flight Trainer (2F137 – non-visual)

ILS - Instrument Landing System

IMC - Instrument Meteorological Conditions

IMS - International Military Student

IMSO - International Military Student Officer

IP - Instructor Pilot

IPC - Initial Progress Check

IROK - Inspect/Inflate, Release, Options, Koch Fittings

ITO - Instrument Takeoff

LAB - Laboratory/Practical Problem

LAR - Launch Acceptability Region

LECT - Lecture

LOC - Localizer

LP - Low Pressure

LSO - Landing Signal Officer

MFD - Multi-Function Display

MIF - Maneuver Item File

MIL - Mediated Interactive Lecture

MPTS - Multi-Service Pilot Training System

NACES - Navy Aircrew Common Ejection Seat

NATCAP - Naval Air Training Class Advisor Program

NATOPS - Naval Air Training and Operating Procedures Standardization

NAVAIDS - Navigational Aids

NIFM - NATOPS Instrument Flight Manual

NORDO - No Radio

NWS - Nose Wheel Steering

OBOGS - On-Board Oxygen Generating System

OBT - Offensive Break Turn

OFT - Operational Flight Trainer (2F138 - visual)

OLS - Optical Landing System

OPAREA - Operations Area

OPLAN - Operations Plan

OPS - Operations

PA - Precautionary Approach

PADS - Position, Altitude, Distance, and Speed

PAR - Precision Approach Radar

PENCIL - Non-CAI Administered Examination

P/P - Partial Panel

QOD - Question of the Day

RAT - Ram Air Turbine

RC - Rear Cockpit - Fly in rear cockpit with a qualified flight instructor onboard providing instruction, assistance, or supervision.

RECCE - Reconnaissance

ROE - Rules of Engagement

RRU - Ready Room Unsatisfactory

RTB - Return to Base

SAR - Search and Rescue

S/B - Speed Brakes

SIF - Selected Identification Features

Simo - Simultaneous Tracking

SMS - Student Monitoring Status

SNA - Student Naval Aviator

Solo - Fly without a qualified flight instructor.

SRT - Standard Rate Turn

SSR - Special Syllabus Requirement

TACAN - Tactical Air Navigation

TRB - Training Review Board

UHF - Ultra High Frequency

VASI - Visual Approach Slope Indicator

VFR - Visual Flight Rules

VFQ - Visual Forward-Quarter

VHF - Very High Frequency

VMC - Visual Meteorological Conditions

VOR - VHF Omnidirectional Range

WEZ - Weapons Engagement Zone

WKBK - Workbook

Wx - Weather

X - Check flight, simulator check event, or examination lesson.

GLOSSARY

1. Advancing X. Completed event within the normal syllabus flow. Excludes events with last characters in the range 85-89.

2. Aviation Training Form. A grade sheet documenting student performance for all categories of training regardless of media, phase, or stage.

3. Aviation Training Jacket. The ATJ is the student's training record. It contains ATFs, calendar card, grade reports, and all other associated training information. It is filed in student control and follows the student through all phases of training.

4. Aviation Training Summary. A tabular sheet listing the MIF and maneuver grades within a training stage.

5. Block of Training. A sequential series of lessons within a training stage sharing an identical MIF. The second number in the lesson designator identifies a block.

6. Check Ride (SXX90). A flight check in any stage of training.

7. Course of Training. The entire program of preflight, flight, simulation, academics, and officer development conducted in all media during the programmed training days.

8. Course Training Standard. A description of required behaviors and standards of performance for a specific maneuver. These standards are in Chapter IX.

9. Courseware. The technical data, FTIs, audio, video, film, CAI, instructor guides, student study guides, and other training material developed to support and implement the syllabus of instruction.

10. Critical Item. Any maneuver coded with a plus sign (+). This symbol indicates the maneuver is required and must be accomplished to the specified standard in that block of training.

11. Deliverables. A CNATRA 1542/1827 (Rev. 4-04) TRB Summary Form, generated by the TRB, that summarizes a specific student's progress in a given syllabus and provides detailed information

on the application of MPTS training for that student. Deliverables indicate whether the quality and continuity of training provided was IAW CNATRAINST 1542.167, indicates the degree of influence by "human factors" on the student performance, and makes a recommendation on elimination/retention based on those items.

12. End of Block. Last event in block. In order to progress past EOB, the SNA must meet or exceed MIF on all critical items, and all optional items attempted, by the end of the block. Flight shall consist of a cross-section of critical items; however, all critical items do not have to be accomplished on the last flight in block as long as MIF had been previously met.

13. Emergency Procedure. Any degradation of aircraft systems or flight conditions requiring pilot action or intervention.

14. Extra Training (SXX87). Additional student training flights ordered by the Operations Officer, or higher, in order to make up for documented instructional deficiencies.

15. Final Progress Check (SXX89). A special check normally given by the Commanding Officer (CO), Executive Officer (XO), or their representative. The CO may delegate FPC duty to a qualified 0-4 or above, in the event that neither the CO nor XO is qualified or available to instruct in the required stage. A satisfactory FPC returns the student to normal syllabus flow. An unsatisfactory FPC results in a TRB.

16. Flight Training Instruction. A CNATRA-approved manual describing flight procedures and techniques for each training stage.

17. Hours per X (H/X). The average length for each event in a block, rounded to the nearest tenth of an hour.

18. Initial Progress Check (SXX88). A special check given by the Operations Officer or designated representative. A satisfactory IPC returns the student to normal syllabus flow. An unsatisfactory IPC results in an FPC.

19. Lesson Designator. All syllabus events have a lesson designator consisting of a stage identifier of up to three letters and an event code of four numbers in the following format:

Char	Meaning	Remarks
1st - 3rd	Stage	AER—Aerodynamics AN—Airways Navigation ASI—Aviation Student Indoctrination BFM—Basic Fighter Maneuvering BI—Basic instruments CO—Cockpit Orientation CR—Course Rules CRM—Crew Resource Management CQL—Carrier Qualification Landing DIV—Division Formation ENG—Engineering EP—Emergency Procedures FAM—Familiarization FCL—Field Carrier Landing Practice FRM—Formation IR—Instrument Rating MET—Meteorology NA—NATOPS Examination NAV—Instrument Navigation NFM—Night Familiarization NFR—Night Formation OCF—Out-of-Control Flight ON—Operational Navigation ORM—Operational Resource Management RI—Radio Instruments SEA—Seat SEM—Section Engaged Maneuvering STK—Strike/Air-to-Ground Weapons TAC—Tactical Formation
4th	Media	0—Ground Training 1—Flight Support 2—Emergency Procedures Simulator 3—Simulator 4—Aircraft
5th	Block	Sequential, indicating block within stage.
6th & 7th	Event/Check Identifier	Sequential, indicating event within block, or other event types as shown below: 84—Adaptation 85—Practice Sim 86—Warmup 87—Extra Training 88—Initial Progress Check 89—Final Progress Check 90—Check Ride/Exam

20. Maneuver Item File. A listing of required maneuvers and associated proficiency levels for each block of training.

21. Master Syllabus. Chapters I-VIII list all training syllabus activities, prerequisites, and desired training flow for T-45 Combined MPTS.

22. Naval Air Training Class Advisor Program (NATCAP) Officer. An Instructor Pilot assigned to provide counseling and guidance to a specific student pilot or pilots throughout the applicable syllabus.

23. Off-Wing Flight. A Day Familiarization flight not flown with the student's on-wing.

24. On-Wing. One of two primary instructors assigned to prepare a student in the Familiarization stage IAW CNATRAINST 1500.4G.

25. Outcomes. Potential courses of action following a Progress Check. There are only two basic outcomes:

a. Pass - Return to training.

b. Fail - Proceed with the elimination process/eliminate.

26. Phase of Training. A phase consists of a major division in the course of training. T-45 Combined MPTS training consists of three phases: Intermediate Jet and either Advanced Strike or Intermediate E-2/C-2. E-2/C-2 students will continue on to Advanced E-2/C-2 training in the T-44.

27. Pink ATF. A standard ATF that is printed on pink paper. The pink ATF is used to denote an unsatisfactory event generating a progress check.

28. Progress Check Pilot. An Instructor Pilot authorized to administer initial or final progress checks.

29. Ready Room Unsatisfactory. An unsatisfactory grade given for inadequate knowledge of flight procedures, systems, discuss items, emergency procedures, deficient preflight planning, or unofficer-like qualities.

30. Regression. Performance of a graded item, maneuver, or procedure determined to be below the MIF proficiency level of that same item, maneuver, or procedure in a previously completed block of training.

31. Special Syllabus Requirement. One time, ungraded demonstration item(s).

32. Stage of Training. A stage consists of all training of a particular type (Engineering, Familiarization, Operational Navigation, Carrier Qualification Landing, etc.) within a phase. The first three letters in the lesson designator identify the stage of each lesson (Example: FRM4101 is in the Formation Stage). Refer to the Lesson Designator Table on page xxiv for a complete listing of all stages in the T-45 Combined MPTS curriculum.

33. Student Monitoring Status. Squadron-initiated status to address substandard student performance.

34. Supplemental ATF. A form inserted into a student's ATJ that contains nonsyllabus information. Also referred to as a "writeup" in TIMS.

35. Training Media. T-45 Combined MPTS media include aircraft, simulators, emergency procedures simulators, flight support lectures and ground training instruction. The first number in the lesson identifier designates the training media. Ground training and flight support lectures may consist of MILs, off-line lectures (LECT), and CAI lessons and exams.

36. Training Review Board. A fact-finding board appointed to conduct an administrative review of circumstances and procedures relative to a failed FPC.

37. Warmup Event (SXX86). Additional events given to allow a student to regain a level of proficiency previously demonstrated which has diminished due to a break in training.

BLANK PAGE

Chapter I

General Instructions

1. Syllabus Management

a. Distribution. Participating squadron personnel.

b. Interpretation. The syllabus is directive. Should circumstances create situations not covered within the scope of this syllabus, or specific course of action appears to conflict with other directives, consult CNATRA (N71).

c. Deviations. Document all deviations on the event's ATF.

d. Changes. Recommended changes shall be submitted in accordance with CNATRAINST 1550.6E.

e. Execution. All students will execute all the events listed in the Intermediate Jet phase of this curriculum. Following completion of the Intermediate Jet phase, students will be selected for either Advanced Strike or Intermediate E-2/C-2 training. Students will then complete only those additional events contained in their selected phase.

f. Syllabus Description. The T-45 Combined Multi-service Pilot Training System consists of Intermediate Jet, Advanced Strike, and Intermediate E-2/C-2 undergraduate flight training for USN, USMC, and IMS students. These three phases of training are flown in the T-45C aircraft. Each phase is divided into stages. Each stage is subdivided into training blocks. The training blocks consist of a specified number of flights. Maneuver item files identify the acceptable level of performance that must be achieved at the completion of each training block.

g. Grade Calculation

(1) Phase Aggregate Score (PAS). An SNA's PAS is a comparative ranking based on the previous population of completers for a specific phase or portion of a phase of aviation training. PAS indicates only SNA performance relative to a normative population of other recent SNAs. Under the MPTS system, PAS is not by itself an indication of whether an SNA has met the criteria necessary for winging or continuation in aviation training. PAS is calculated for each block within a

curriculum, for the subset of blocks completed by an SNA still in training (Interim PAS), and for the entire phase.

MPTS SNA Calculations. From a population of previous SNAs, an SNA's PAS is calculated using equation (1), below:

$$SNA\_PAS = 50 + 10 * \left(0.9 * \frac{S - M1}{S1} + 0.1 * \frac{M2 - NMU}{S2} \right) \quad (1)$$

Where

S – SNA Score
NMU – SNA NMU
M1 – Squadron Average Score
M2 – Squadron Average Number of Marginals and Unsats (NMU)
S1 – Standard Deviation of Squadron Score
S2 – Standard Deviation of Squadron NMU

(2) NSS. NSS is calculated to correct for potential non-normality in the distribution of PAS. NSS is calculated for each block within a curriculum, for the subset of blocks completed by an SNA still in training (Interim NSS), and for the entire phase. NSS is calculated from PAS by using equation (2), below:

$$NSS = 50 + 10 * \left(\frac{PAS - MPAS}{SDPAS} \right) \quad (2)$$

Where

PAS – SNA PAS
MPAS – Squadron Average PAS
SDPAS – Standard Deviation of Squadron PAS

2. Training Management

a. Syllabus Progression. Other than noted exceptions, syllabus events shall be flown sequentially within each stage. Blocks shall not be started without all prerequisites completed. Where clearly identified, students may be in different stages or blocks simultaneously. Where applicable, students will be eligible for, and shall be prepared for, more than one syllabus event. Students must complete all events in their assigned phases. The flowcharts on pages I-4, I-5, I-7, I-9 and I-11 delineate the sequence of events and their ground training prerequisites except as listed in paragraph 1e and 2b. System training management is designed to facilitate two graded events (flight, simulator, exam, or combination thereof) per student per day.

b. Accelerated Progression. Under exceptional circumstances, a student's previous flight experience may warrant accelerated progression. The Squadron Commander may advance the student to the next block of instruction when all required items for the current block of instruction meet EOB MIF. This policy is not to be used to accelerate squadron production goals. It is strictly for the rare instances where the student's demonstrated proficiency, due to previous flight experience, makes completion of all events within a block of instruction unnecessary. For example, pipeline reassignment of fleet aviators from other communities may warrant acceleration through the Instrument Stage based on previous instrument training. All records for the accelerated student, including the ATJ and mini-ATJ, will be clearly marked ACCELERATED PROGRESSION. ATFs for the events not flown will be completed with a note in the remarks section stating "ACCELERATED PROGRESSION – EVENT NOT FLOWN. ATF COMPLETED FOR ADMINISTRATIVE PURPOSES ONLY IAW CNATRAINST 1542.SERIES."

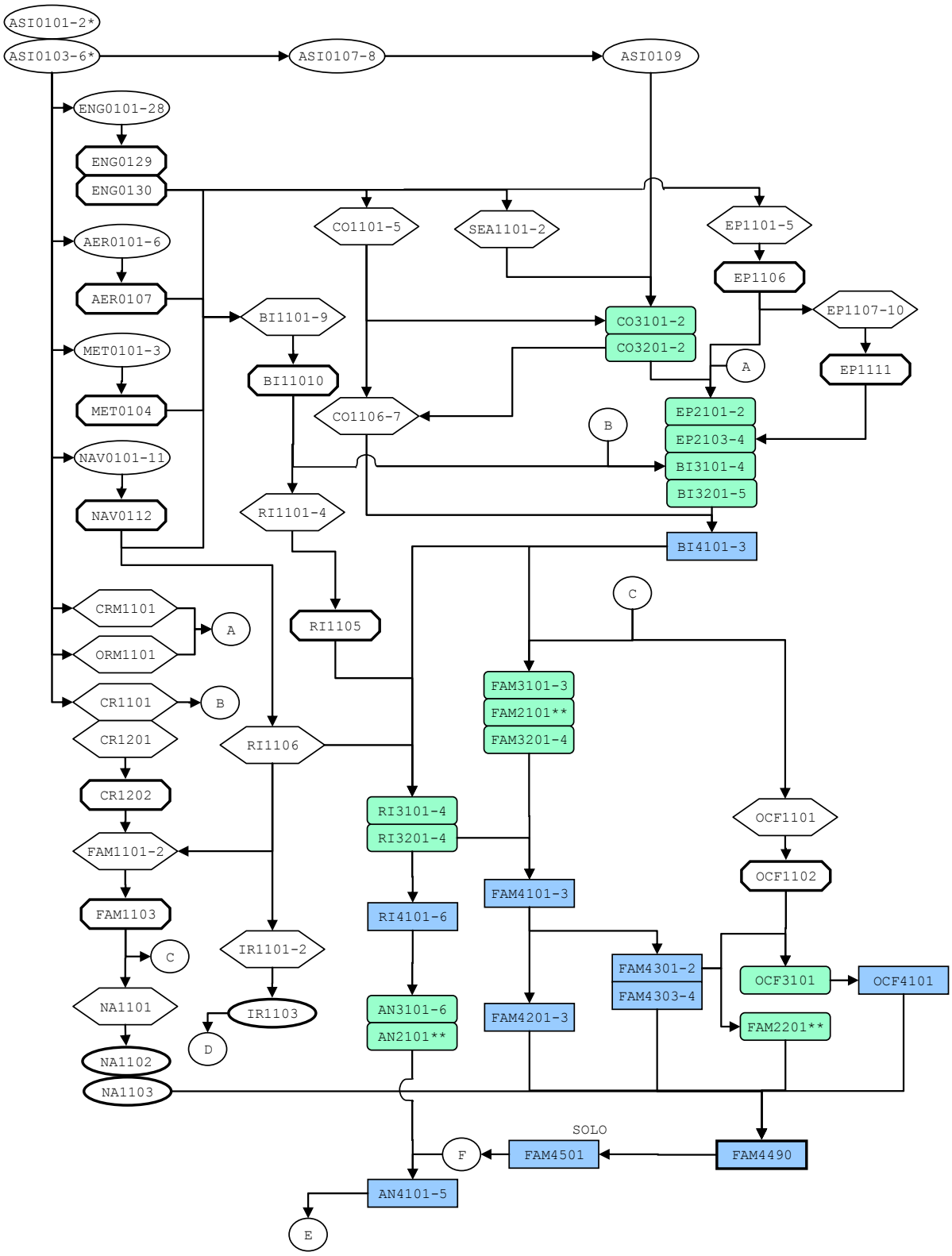
c. Maneuver Continuity. Students must accomplish previously introduced maneuvers frequently enough to ensure required proficiency is maintained.

d. Hours/X (H/X). Instructor Pilots shall plan and execute missions to meet H/X as closely as practical. If actual event length varies from the programmed H/X by more than 0.3 hours, annotate reason(s) in ATF's general comments section.

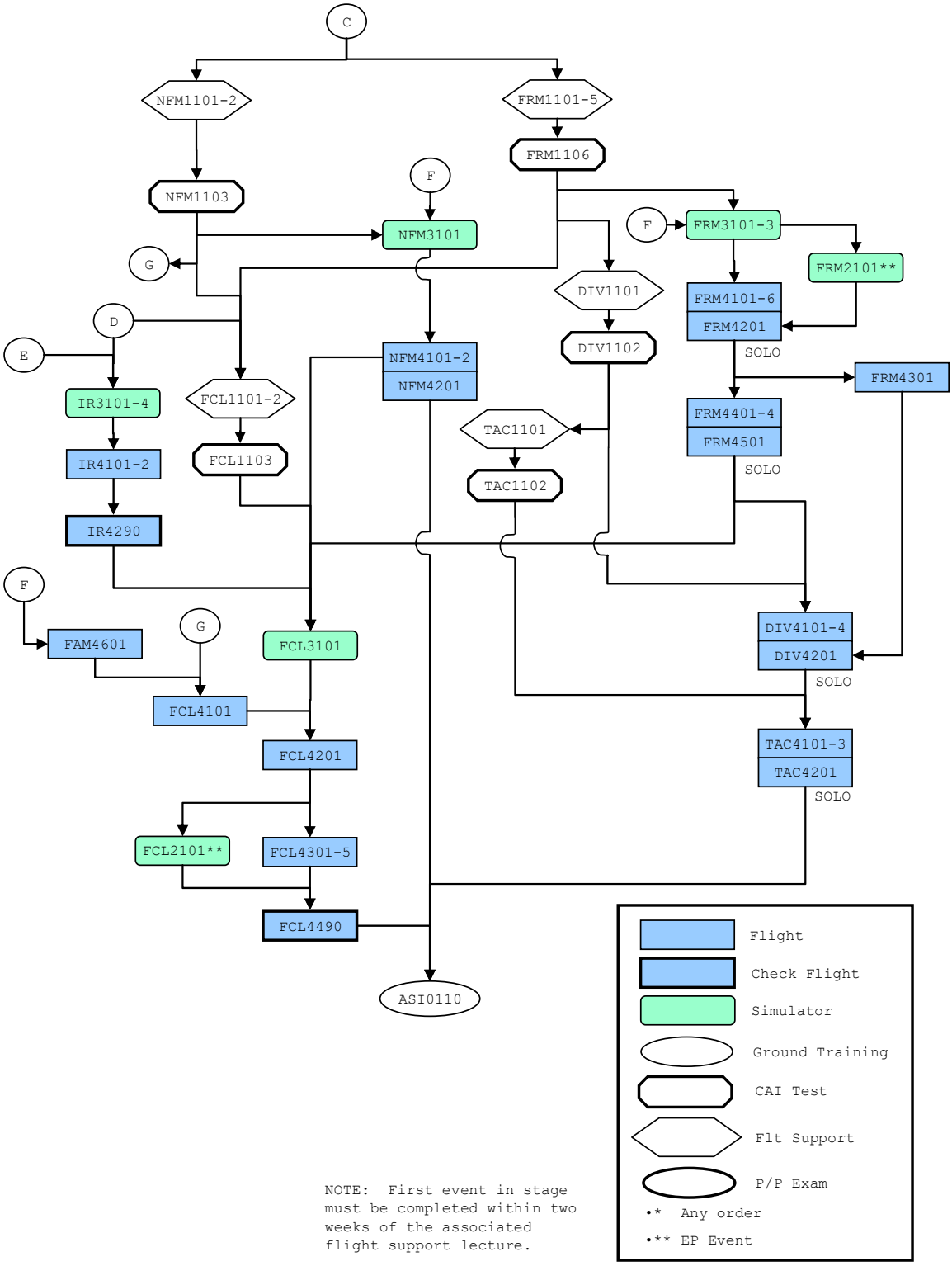
e. Special Syllabus Requirements. The SSRs are allocated to flights. Unless noted otherwise, IPs may accomplish SSRs on any flight within the block. The SSRs shall be completed in the specified block. Annotate completed SSRs in the ATF's SSR Comments section. Assign NG/1 as the SSR maneuver grade.

f. Aviation Training Jacket Reviews. The NATCAP, or other qualified flight instructor will conduct jacket reviews at least monthly. SMS students require weekly ATJ reviews.

INTERMEDIATE JET COMPLETE COURSE FLOW (PART 1)



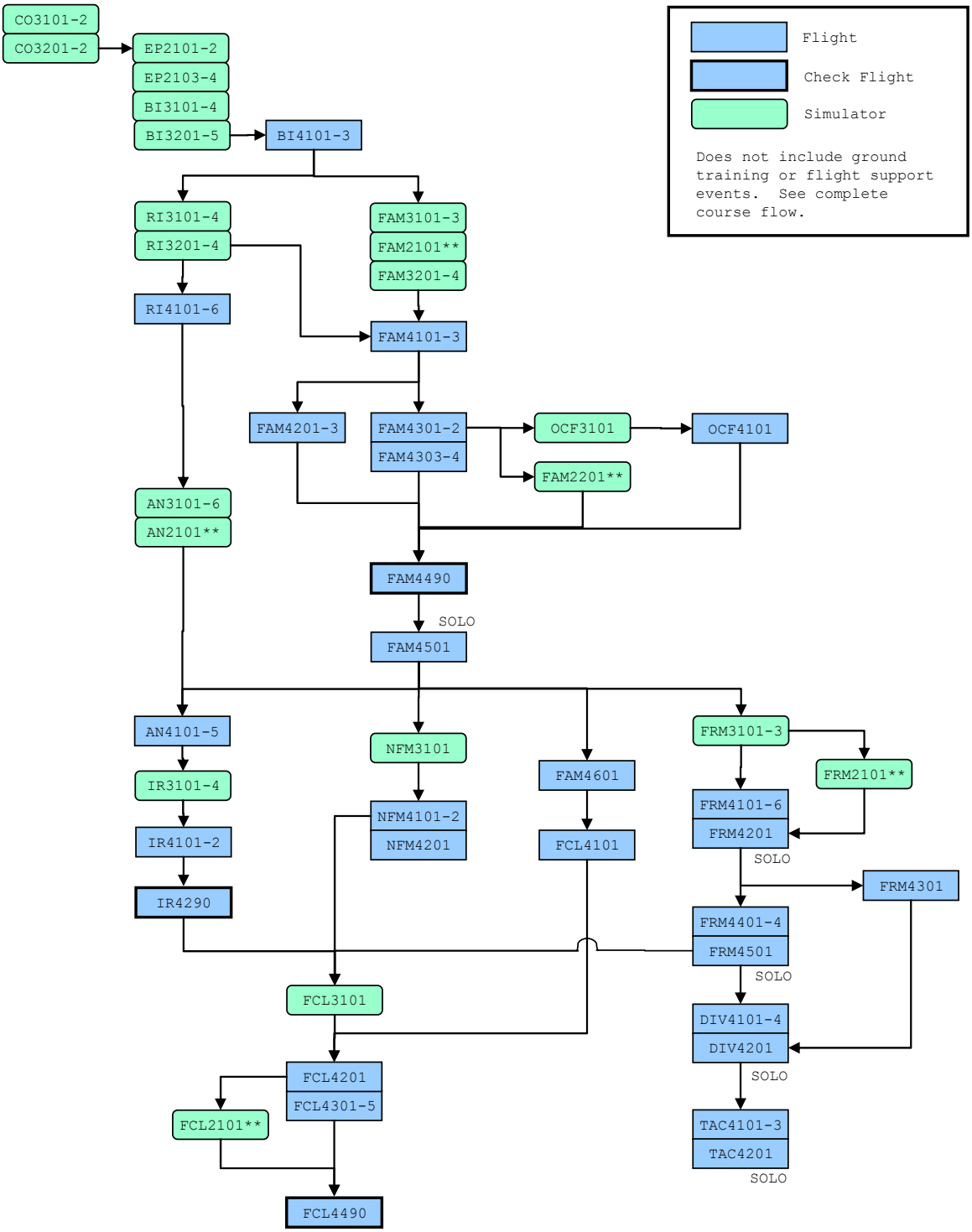
INTERMEDIATE JET COMPLETE COURSE FLOW (PART 2)



NOTE: First event in stage must be completed within two weeks of the associated flight support lecture.

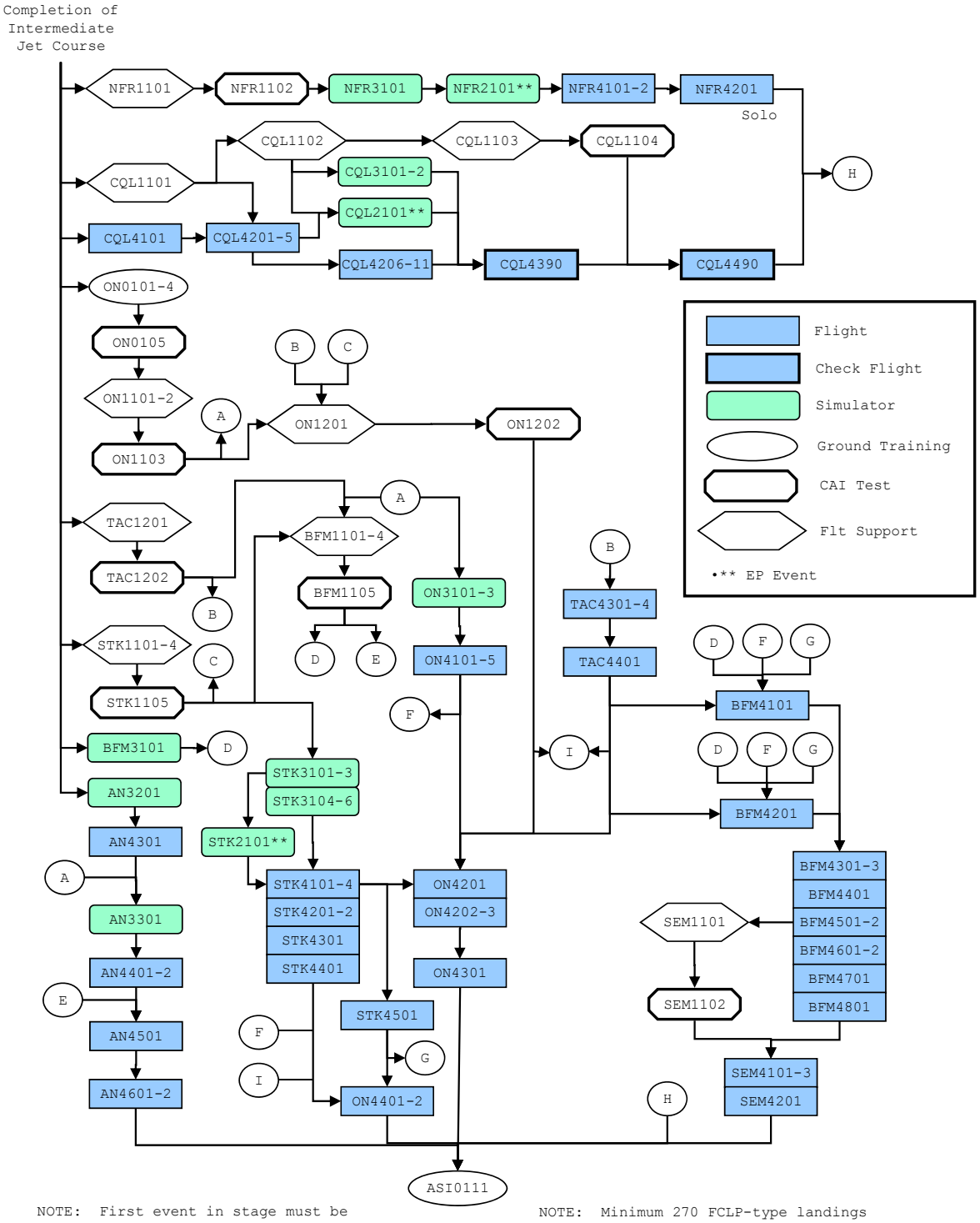
BLANK PAGE

INTERMEDIATE JET FLIGHT/DEVICE FLOW



BLANK PAGE

ADVANCED STRIKE COMPLETE COURSE FLOW

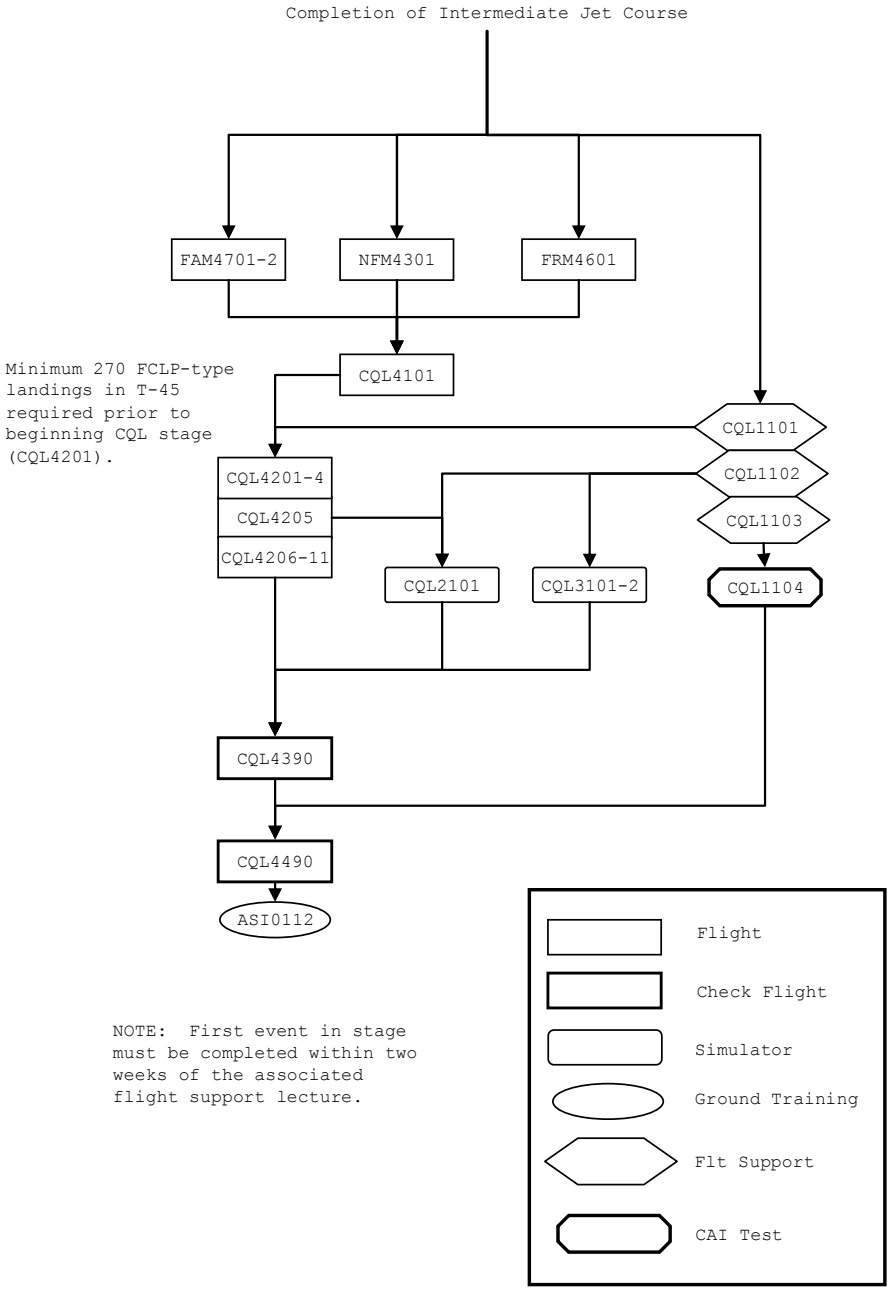


NOTE: First event in stage must be completed within two weeks of the associated flight support lecture.

NOTE: Minimum 270 FCLP-type landings in T-45 required prior to beginning CQL stage (CQL4201).

BLANK PAGE

INTERMEDIATE E-2/C-2 COURSE FLOW



NOTE: First event in stage must be completed within two weeks of the associated flight support lecture.

BLANK PAGE

3. Unsatisfactory Performance. (See also **Progress Check Procedures**, Chapter I, paragraph 10c(3).)

a. Flight/Simulator

(1) If syllabus events remain in the block, the student shall progress to the next syllabus event, until the second consecutive unsatisfactory or third cumulative unsatisfactory in block.

(2) If no syllabus events remain, repeat the last syllabus event in the block until the student meets MIF, the second consecutive unsatisfactory, or the third cumulative unsatisfactory.

(3) An unsatisfactory check flight (SXX90), two consecutive unsats, or three cumulative unsats (in the same in block) result in an IPC. Document the failed check flight or second consecutive/third (in block) cumulative unsat on a pink ATF for that syllabus event.

(4) A subsequent check flight failure, two further consecutive unsats, or three further unsatisfactory syllabus events in block result in an FPC. Document the subsequent failed check flight, second consecutive/third (in block) cumulative unsat on a pink ATF generating the progress check.

(5) Failing an FPC results in a TRB.

(6) Unsatisfactory performance in the FCL and CQL stages of training will normally result in class rollback and repetition of the entire stage of training for the first occurrence. Subsequent unsatisfactory performance in the FCL or CQL stage will result in a TRB. Continuation of training in other stages of the Advanced Strike Curriculum following an unsatisfactory in CQL stage is at the discretion of the Commanding Officer.

b. Ready Room Unsatisfactory

(1) An RRU on any syllabus event will result in an IPC. Document the RRU on a pink ATF for that event. The event will be marked as incomplete with an unsatisfactory grade in the procedures column. On remediation of unsatisfactory performance, the event will be flown to completion, and general

knowledge and emergency procedures will be incorporated into the overall grading solution.

(2) A second or subsequent RRU, OLQ, or a failed IPC, will result in an FPC. Document the failed IPC on a pink ATF generating the Progress Check.

(3) Failing an FPC will result in a TRB.

c. Academic. Failing the same exam twice or failing more than one exam triggers an IPC or FPC as appropriate. Any subsequent exam failure will automatically trigger an FPC. The IPC or FPC shall be completed prior to retake.

d. Remediation

(1) A ground evaluation emphasizing the deficient areas may clear an unsatisfactory check flight or end of block syllabus event caused solely by ground operations.

(2) End of block unsatisfactory syllabus events in the Instrument stage may be cleared in the simulator if these conditions are met:

(a) The cause of the unsatisfactory is specific to the maneuver.

(b) The simulator is suited to the failed maneuver.

e. Restrictions. Until remediation events are completed:

(1) The student shall not fly solo, except in the case of FCL/CQL Stages.

(2) The student will not accomplish training in any other stage, except in the case of CQL where training may be continued in other stages until the next workup cycle begins for the CQL remediation flights.

(3) Academic classes, examinations, and ground training missions may be accomplished provided the unsatisfactory mission was not a prerequisite.

4. Training Review Board. Refer to CNATRAINST 1500.4G.

5. Instructor Continuity

a. Students shall fly Familiarization blocks FAM41 and FAM43 on-wing, except for no more than two off-wing events. FAM42 block does not require on-wing instructors. Familiarization check flight FAM4490 shall be flown with an off-wing instructor.

b. The Commanding Officer, Executive Officer, Operations Officer, or Assistant Operations Officer may substitute as on-wing in the event that neither of the student's on-wings is available. Substitute on-wings shall be in the student's direct chain of command and must be qualified in the Familiarization stage.

c. There are no other instructor continuity requirements unless specified by the Operations Officer for SMS students.

6. Break in Training Warmup Events (SXX86). Warmup events (simulator or aircraft) compensate for breaks in training that result in a reduction in student proficiency. Eligibility for warmup events is based on the number of days since the last flight or simulator in the same stage as defined in CNATRAINST 1500.4G. All warmup simulators shall be instructional, and warmup aircraft events shall be dual (with the exception of FCL and CQL stage warmups as determined by the LSO, as long as they fall within the currency criteria for student solo flight). If more than seven days have elapsed between a simulator event and a subsequent flight event, a warmup simulator(s) shall be awarded. Otherwise, the warmup event shall be conducted in the aircraft if the next syllabus event is an aircraft event or in the simulator if the next syllabus event is a simulator event. Warmup events will be coded SXX86, e.g., FAM4186. Warmup grades do not satisfy block or MIF requirements and shall not be included in the cumulative totals. The following specific guidelines govern the administration of warmup events:

a. Warmup Flights for Extended Breaks in Training. Refer to CNATRAINST 1500.4G for administration of warmup events for delays in training of more than 14 days.

b. Warmup Events Between Stages. Warmup events shall not be given prior to the first event in stage unless more than 14 days have elapsed since any syllabus event has been conducted (refer to CNATRAINST 1500.4G for warmup event guidelines).

c. Warmup Events in FCL and CQL Stages. A warmup FCLP period shall be awarded if three days have elapsed since the last FCLP period. FCLP warmup is required if more than two days have elapsed between successful field qualification (CQL4490) and the first carrier landing. FCLP currency is subsequently required every two days thereafter. A touch-and-go or trap at the ship satisfies this requirement.

d. Optional Warmup Criteria. Optional warmup criteria are defined in CNATRAINST 1500.4G. Optional warmup events are based on the student's performance. If the student is in the optional warmup window and their performance meets MIF (is sufficient to meet MIF by the end of block), the event shall count as the next syllabus event. If the student's performance is marginal or unsatisfactory, the event will be coded as a warmup.

(1) Additional Warmup Events. The Operations Officer may direct additional warmup flights or simulator events for extended breaks in training.

(2) Award an additional safe-for-solo flight if more than three calendar days have elapsed since last safe-for-solo check flight prior to FAM4501.

(3) Not Safe-for-Solo. If the student is not safe-for-solo:

(a) Count the flight as a warmup due to the student's loss of proficiency.

(b) The next flight shall be another safe-for-solo check and should be flown in the next six calendar days.

(c) An IPC/FPC shall follow failure of the second safe-for-solo if the flight is flown within the six-day window described above. If more than six days elapse between failed safe-for-solo checks, the flights shall be treated as mandatory warmup flights.

CRITERIA FOR AWARDING WARMUP EVENTS IN STAGE		
Break* (Days)	**Warmup Events**	**Remarks**
1-6	None	• Except the first solo flight, FAM4501 (see paragraph 6.d.(2). • Special rules apply to FCL and CQL stages (see paragraph 6.c.).
7-13 Sim to A/C	1 Mandatory Simulator[1]	• Mandatory warmup is not an advancing "X."
7-13 All Others	1 Optional	• Optional warmup based on performance and is required if overall grade is Marginal or Unsatisfactory.
14-30 Sim to A/C	2 Mandatory Simulators[2]	• Mandatory warmups are not advancing "X's."
14-30 All Others	1 Mandatory 1 Optional	• Mandatory warmup is not an advancing "X." • Optional warmup based on performance and is required if overall grade is Marginal or Unsatisfactory.

*Break = Current Julian Date – Julian Date of last simulator or flight event.

Note[1]: Warmup event may be flown in aircraft with the TRAWING Commander's approval.

Note[2]: For stages with a single simulator event, only one mandatory warmup event is required.

Note: Warmup events are separate from front-seat landing currency events. See paragraph 11.b.(4)(a)-(c) below for landing currency requirements.

Note: Stage-specific Emergency Procedure simulators satisfy simulator warmup requirements for that stage.

Note: Intermediate Jet and Advanced Strike are separate phases of training. Stage warmup criteria do not apply between phases.

Note: Advanced Phase instrument events do not require warmups as long as the student has logged First Pilot flight time within the preceding 14 days.

7. Additional Flights and Simulators

a. Extra Training Events (SXX87). All ETs shall be dual (except FCL or CQL as determined by the LSO) and coded as SXX87, e.g., FAM4187.

(1) ET events include, but are not limited to:

(a) IPC/FPC ET Events. Events awarded to compensate for training inadequacies, e.g., poor event/maneuver continuity, or improper instruction.

1. Preceding an IPC. The Operations Officer may authorize one ET prior to an IPC.

2. Preceding an FPC. The Commanding Officer may authorize as many as two ETs prior to an FPC.

3. IPC/FPC 87 events **shall not** be awarded to remediate unsatisfactory student performance unrelated to unit/ instructional training inadequacies.

4. Document the awarding of IPC/FPC 87 events on supplemental ATF.

(b) International Students. The Operations Officer may authorize additional events to international students IAW CNATRAINST 1500.4G.

(2) If the ET does not meet the objectives, the Operations Officer will decide if an additional event is warranted.

b. Adaptation Events (SXX84). The Operations Officer may grant events required for adaptation to the flying environment when requested by the flight surgeon, e.g., airsickness, eyeglasses, etc.

c. Practice Simulators (SXX85). Students may receive practice simulator events as availability permits. These practice events are not part of the syllabus.

8. Student Monitoring Status

a. The objective is to focus supervisory attention on a student's progress in training, specific deficiencies, and/or potential to complete the program. It may also be applied to students who require supervisory attention while trying to resolve personal issues.

b. The Operations Officer will place the student on SMS to address substandard performance in a specific area.

c. SMS is intended as a short-term program. SMS requires the setting of specific goals for removal from SMS or proceeding with the elimination process. SMS goals should be tailored to correct deficiencies or to address personal issues as the Operations Officer and/or NATCAP determines. The goals and the required period in SMS must be annotated in a supplemental ATF in the student's ATJ.

d. If the student achieves the goals within the SMS period or when personal issues are resolved, the student returns to normal training flow. If the student is unable to meet the specific goals of SMS, or performance does not improve, the student may progress to an IPC or FPC.

9. Ground Training And Briefing Requirements

a. Mission Preparation, Briefings, and Debriefings

(1) EOB Events. The IP shall carefully review the ATS in planning the EOB event to ensure the profile includes opportunities to reach MIF on all critical items and optional items attempted in the block.

(2) Preparation. Students shall arrive for each flight with:

(a) Thorough knowledge of:

1. The flight's discuss items, as listed in Chapters III-VIII.

2. Procedural knowledge of the critical items for the event's training block.

(b) A flight profile tailored to training requirements, weak areas, and continuity.

(c) The latest ATS for the stage.

(3) Briefing. Thoroughly cover the mission's:

(a) Event discuss items, as listed in Chapters III-VIII.

(b) Specific objectives.

(c) Techniques and required procedures for accomplishing those objectives.

(d) Planned profile and contingencies.

(4) Debriefing

(a) After each event, the instructor shall critique the student's performance using cause/effect analysis, particularly with respect to the CTSs.

(b) The mission's complexity and student's progress will govern the time required for debrief.

b. Emergency Procedures Briefing and Training

(1) EP training builds the student's confidence in the aircraft. The IP shall conduct emergency procedures training on all dual aircraft events, either on the ground or in the aircraft. Correct procedural deficiencies through additional instruction and study assignments.

(2) Incorporate emergency procedures training into simulator events when practical; however, instructional block objectives take precedence.

(3) Grade the student's overall EP knowledge and performance under Emergency Procedures.

10. Mission Grading Procedures and Evaluation Policies

a. General Grading and Evaluation Policy. Maneuver Item Files listed in the MPTS are minimum stage/phase completion standards per maneuver. Students who consistently perform at the absolute minimum standard through multiple stages/phases may not possess the skills required to complete follow-on training. The MIF is designed to allow for minimum performance in a specific area with the understanding that performance above the minimum MIF will offset the weak area.

b. Grading Procedures (Aircraft and Training Devices)

(1) Absolute Maneuver Grading. Use the following grading scale to document the student's characteristic performance on maneuvers attempted during each event. This is an absolute grading scale. Judge the student's proficiency **only** against the item's course training standard. (See **Student Performance Measurement/Application of Standards**, page xiv, Course Data, paragraph 21.)

(a) Demonstrated (NG/1 Level). Enter "No Grade:"

1. When the IP demonstrates the maneuver and the student does not subsequently perform it during the event.

2. For solo flights, where an IP cannot observe individual graded items.

3. To indicate accomplishing all SSRs for that event. Specify completed SSRs in the ATF's SSR comments section.

(b) Unable (U/2 Level). Performance is unsafe or lacks sufficient knowledge, skill, or ability. Deviations greatly exceed CTS, significantly disrupting performance. Corrections significantly lag deviations or aggravate the deviation.

(c) Fair (F/3 Level). Performance is safe, but with limited proficiency. Deviations exceed CTS, detracting from performance. Corrections noticeably lag deviations, and may not be appropriate.

(d) Good (G/4 Level). Characteristic performance is consistently within CTS. Deviations outside CTS are allowed, provided they are brief, minor, and do not affect safety of flight. Corrections must be appropriate and timely.

(e) Excellent (E/5 Level). Greatly surpasses CTS. Performance is correct, efficient, and skillful. Deviations are very minor. Corrections, if required, are initiated by the student and are appropriate, smooth, and rapid.

(2) Solo Events

(a) Assign NG/1 for unobserved maneuvers.

(b) Any IP may grade maneuvers observed to be either unsafe or exceptional on the solo ATF. These grades shall count toward overall PAS.

(3) Overall Event Grades. Overall event grades represent the student's progression through MPTS. Grade events "Pass," "Marginal," or "Unsatisfactory." Use the following definitions to characterize event grades.

(a) Pass

1. Prior to EOB. Progress is adequate to meet standards by EOB.

2. EOB. The student's performance meets or exceeds standards.

(b) Marginal. Ability to meet the standards by the end of the block is questionable. IPs may not award a Marginal on an EOB event or check flight.

(c) Unsatisfactory. Student exhibits dangerous tendencies, or progress towards meeting EOB standards is insufficient.

(4) Awarding Overall Event Grades. The student's overall grade is based on the student's performance against the MIF. The following rules govern overall event grading.

(a) EOB. Performance must meet MIF by EOB. If the student has previously met MIF in the block, he or she must still meet MIF in the EOB flight if the maneuver is reattempted.

(b) Prior to EOB. Performance must meet/exceed previous block MIF. EXAMPLE:

1. FAM43 MIF requires an F/3 for No-Flap Landings. FAM44 MIF requires a G/4.

2. The student must meet or exceed F/3 to progress out of FAM43.

3. The student must maintain or exceed F/3 until the last FAM44 event, by which time the student must attain G/4. Performance at any time in FAM44 at U/2 would be considered a "Regression."

(c) Exception. Students shall maintain or exceed MIF performance from one block to the next within stage or between media within stage. The exception is when MIF on a subsequent block is below the preceding block MIF. In this case, the lower MIF applies.

(5) Regression Rules. Regression rules allow for uneven progress through training. Regression rules do not apply to the first block in each stage. The following specifies allowable regression.

(a) The student is allowed up to two maneuver grades of F/3 where a G/4 is required on previous block MIF, and:

1. The student has previously demonstrated G/4 proficiency.

2. The maneuver was not a check flight/safe-for-solo critical (+) item.

3. The IP is satisfied the student is ready to progress to the next event.

(b) The IP must award an overall unsatisfactory if:

1. Regression was to a U/2 where F/3 or G/4 was previously required, or

2. Performance on the same maneuver for two consecutive events resulted in an F/3 where a G/4 was previously required, or

3. There was regression on more than two items during an event.

(6) Maneuver Requirements. For each block:

(a) Mandatory Items. Items with a number and a plus (+) are mandatory and the student must meet the required proficiency by EOB. When a maneuver is performed multiple times in a block of training, the last grade assigned for the maneuver will determine if the student meets EOB MIF.

(b) Optional Items. Items with a number, but without a plus (+), are optional. However, if flown, the student must meet the required proficiency by EOB.

(c) Not Demonstrated/Not Performed. The IP will not demonstrate, nor will the student perform:

1. Unnumbered items.

2. Items not in the stage.

3. Exceptions:

a. Weather-driven instrument approaches.

b. Prebriefed maneuvers for IP proficiency.

(7) Incomplete Events. In general, IPs should consider an event complete if able to accomplish the requirements in paragraph (a) below. This is particularly true when weather precludes accomplishing certain maneuver items, but the IP is able to emphasize training on other maneuver items. Subsequent events in the block, when available, can reverse this emphasis, hence achieving overall training balance. If a student has had ample opportunity to learn a task, and subsequently flies a

short mission, the event should not be considered incomplete for the sole purpose of providing unwarranted extra training.

(a) Assessment. Assess the event complete if:

1. Seventy-five percent of the event's H/X was used for training, and

2. Sufficient events remain in the block to redress the imbalance, and

3. Individual maneuvers can still be accomplished within the block.

4. Otherwise, assess the event incomplete.

(b) Completion Events

1. An event may both complete a previous event and count as an advancing X.

2. For events flown exclusively to clear an incomplete, grades on maneuvers repeated from the incomplete event do not count towards the student's PAS.

(c) Simulator Event Completion. Assess a simulator event complete if the student has received the full training period as prescribed in this instruction.

c. Policies for Evaluation Flights and Ground Evaluations

(1) Authorized Evaluators. The squadron commander will designate check pilots for each stage.

(2) Check Flights (SXX90)

(a) Check Flight Progression. Check flights are single-event training blocks, therefore, all rules regarding progressing out of a block apply, in addition to the following:

1. Should fly a representative cross section of optional maneuvers.

2. Up to two optional maneuvers may be graded F/3 where G/4 is required without requiring an overall unsatisfactory.

3. Check pilots may allow students to re-accomplish maneuvers.

4. The entire event should be devoted to assessing the student's ability and readiness to progress to the next stage of training. All maneuvers indicated with a plus (+) are check flight critical and must be accomplished to MIF. **Regression rules do not apply**.

5. The student should be able to demonstrate required levels of proficiency without instructor assistance. However, instruction is allowed on check flights and students may re-accomplish maneuvers at the check pilot's discretion.

(b) Incomplete Check Flight. The check flight shall be incomplete when:

1. Any (+) item was not flown, or

2. The check pilot was unable to sample sufficient examples of a given maneuver to assess the student's overall performance.

Note: The subsequent flight need only include maneuvers required to complete the check.

3. Exceptions. The check is complete and the overall grade is unsatisfactory if:

a. Any critical item is below MIF, or

b. More than two non-critical items were graded F/3 where G/4 is required, or

c. Any maneuver is U/2.

(c) Nonfamiliarization Pattern/Landing Failure. If a student triggers an IPC or FPC in a stage other than Familiarization because of an unsatisfactory pattern/landing, any subsequent ET events may be flown as Familiarization events, and the resulting progress check may also be a Familiarization event.

(d) Unsatisfactory Check Ride—Ground Operations. A check flight graded unsatisfactory solely for ground operations requires a progress check. The Operations Officer will decide whether to perform the progress check as a ground evaluation, in the simulator, or in the aircraft.

(3) Progress Check Procedures

(a) The Progress Check Pilot shall consider the student's proficiency, judgment, situational awareness, and overall ability to maneuver the aircraft safely and confidently. The student must also demonstrate the potential to successfully complete follow-on training. All progress checks must meet MIF for the most recently completed block of training. Progress checks shall be full mission profiles emphasizing the student's weak areas and a representative cross section of area and pattern maneuvers. All critical items do not need to be accomplished. Document failed progress checks on the respective pink ATF for the failed event generating the progress check. Flight and Ready Room Unsatisfactory events proceed in separate, parallel tracks:

1. A student's first flight progress check in Phase is an IPC (SXX88) event. Any subsequent flight progress check in the same phase is an FPC (SXX89). Previous RRUs do not affect this progression.

2. Similarly, the first RRU generates an IPC. A subsequent RRU generates an FPC. Previous flight progress checks do not affect this progression.

(b) IPC. The following defines when to conduct an IPC, IPC outcomes, and IPC IPs.

1. Criteria for an IPC are:

a. Failed check flight.

b. Two consecutive or three cumulative unsatisfactory events in the same block, not including SXX87 events.

c. Following a single RRU event.

d. Following two academic test failures.

e. Receiving an OLQ unsatisfactory.

f. Operations Officer or above may direct an IPC when the student's potential to complete MPTS is in doubt (see paragraph 8e, failure to meet specific goals of SMS) or officer-like qualities are inadequate.

2. Outcomes are:

a. Passing returns the student to normal syllabus flow.

b. Failing results in an FPC.

3. IPC IPs. The Operations Officer or his representative designated in writing, usually a STAN pilot, will administer the IPC. Neither a student's on-wing nor the IP that generated the UNSAT grade resulting in the IPC shall administer the IPC. A qualified IPC check pilot shall monitor an IPC conducted in a simulator. The Squadron IPC IP is responsible for making a "return to training" or "continue the elimination process" recommendation to the Squadron CO.

(c) FPC. The following defines when to conduct an FPC, FPC outcomes, and FPC Check Pilots.

1. Criteria for an FPC are:

a. Following a failed IPC.

b. If the conditions requiring an IPC exist and the student has already accomplished an IPC in the same Phase of training (Intermediate Jet, Advanced Strike or Intermediate E-2/C-2).

c. Commanding Officer-directed FPC when the student's potential to complete MPTS is in doubt (See paragraph 8e, failure to meet specific goals of SMS).

2. Outcomes are:

a. Passing returns the student to normal syllabus flow.

b. Failing results in an attrition recommendation by the CO to the TRAWING Commander and a subsequent TRB.

3. FPC IPs. The CO, XO, or a CO-designated representative administers the FPC. It is the intent of CNATRA that wherever possible, the CO or in his absence, the XO, shall conduct FPCs. In the event that neither the CO nor XO are qualified or available to instruct in the required stage, the CO may designate, in writing, a senior officer (0-4 or above) to conduct the FPC by direction. Neither the student's on-wing nor the IP that generated the UNSAT grade resulting in the FPC shall administer the FPC. A qualified FPC IP shall monitor an FPC conducted in the simulator. The FPC IP is responsible for the elimination/retention recommendation to the COMTRAWING.

d. Progress Check Counseling

(1) Prior to an IPC. The student's Class Advisor or the Operations Officer shall counsel the student on the Progress Check Training Review Process and document counseling on a supplemental ATF.

(2) Upon Completion of an IPC. The IPC IP or Operations Officer shall counsel the student on the Progress Check Training Review Process. When conducted by the IPC IP, document counseling on the IPC ATF. When conducted by the Operations Officer (and the Operations Officer was not the IPC IP), document counseling on a supplemental ATF.

(3) Upon Satisfactory Completion of an FPC. The CO or his designated representative will counsel the student. Counseling should consist of, at a minimum, the Progress Check Training Review Process, elimination/retention recommendations, and future courses of action. The CO shall document counseling

on the FPC ATF. If conducted by a designated representative, document counseling on a supplemental ATF.

11. Special Instructions and Restrictions

a. Flight Hour/Event Requirements and Restrictions

(1) Programmed Hours and Events. Syllabus-programmed flight hours are listed on pages xiii – xiv. Event lengths, SXX86, 87, 88, and 89 events will cause variation. Accomplish all syllabus events.

(2) Minimum Night Hours. 24.0 hours Advanced Strike; 15.5 hours Intermediate E-2/C-2.

(3) Minimum Solo Hours. 40.0 hours Advanced Strike; 22.0 hours Intermediate E-2/C-2. At least 80 percent of the H/X for each solo event must be logged to count the event complete.

(4) Maximum Daily Student Activities (Aircraft, Simulator, or Academic). Students shall not be scheduled for, or participate in more than two events during one duty day, except:

(a) Three dual cross-country legs (except BI/RI).

(b) Three FCL/CQL events.

Academic and flight support training must be kept within the 12-hour crew day. If an academic event is four hours or more, it shall be considered a separate event. Students are also limited to three aircraft manups per day (four for cross-country and FCL/CQL events). A manup is defined as entering the cockpit. Scheduling in excess of the above limitations requires specific written approval of the TRAWING Commander. Written approval must be documented in the student's ATJ.

(5) Minimum Student Turn-Times. One hour is required between the end of a scheduled debrief and the beginning of a scheduled brief for a follow-on flight or simulator event. In the event that the student becomes delayed due to maintenance, weather, or other unplanned factors, the IP shall ensure the SNA receives adequate time to rest and prepare for the next event. This does not apply to out-and-in, cross-country, FCL, CQL, or safe-for-solo to solo profiles. In all circumstances, the

instructor shall ensure adequate debrief and brief time is allocated.

(6) Crew Day. The period from the beginning of the student's first event or official duty of the day until the completion of the last event of the day, including associated paperwork and debrief. Crew day shall not exceed 12 hours.

(7) Crew Rest. The period from the end of one crew day until the start of the next shall be no less than 12 hours for students. After six consecutive scheduled days, students shall receive one day off.

b. Solo Restrictions

(1) Documentation. The ATF for the event preceding the solo event must include "Safe for Solo" or "Unsafe for Solo" in the general comments section.

(2) Solo not Permitted. The student may not fly solo unless that ATF states "Safe for Solo."

(3) Briefing. The Wing Duty Officer shall brief the student for Familiarization and Airway Navigation solos. The flight briefing must cover mission profile, objectives, and contingencies.

(4) Front-Seat Landing Requirements

(a) A day front-seat landing is required within the previous two days for the first solo flight (FAM4501).

(b) A day/night front-seat landing is required within the previous day for the first night solo flight (NFM4201).

(c) Thereafter, a day/night front-seat landing is required within five days for a day solo flight and three days for a night solo flight.

(d) Front-seat landing flights shall be coded as SXX86 events. FSL flights may be flown as the event deemed most appropriate to complete mission requirements (i.e. a FAM4X86 front-seat landing flight may be substituted for a Formation

lead event provided that both the formation and the landing requirements can be accomplished.).

NOTE: Front-seat landing currency flights shall not be considered warmup events for anything other than landing currency (i.e., a FAM4X86 front-seat landing flight four days after FRM4106 does not change the fact that the Formation solo must be completed within the original six days following the safe-for-solo check flight. A FRM4186 warmup event must be conducted if more than six days elapse after FRM4106 regardless of landing currency.).

c. Weather requirements

STAGE	FLIGHT	DUAL	SOLO	REMARKS
FAM	ALL	VFR	1500/3	Minimum of three flights with visual ground reference are required prior to FAM4490. Notes (1), (3) and (7).
NFM	ALL	Local VFR	1500/3	Notes (2) and (4).
OCF	4101/ 4201	VFR	------	BFM weather requirements (Max cloud tops 5000-ft AGL).
BI/RI /IR	ALL	OPNAV minima	-------	
AN	ALL	OPNAV minima	1000/3	
FRM	ALL	OPNAV minima	1000/3	Notes (1).
NFR	ALL	OPNAV minima	1500/3	Note (2).
FCL	4301- 4305 4490	Local VFR	Local VFR	Notes (1) and (3).

STAGE	FLIGHT	DUAL	SOLO	REMARKS
ON	4101-05	OPNAV minima	-------	3000/5 on route.
	4201		-------	5000/5 on route.
	4202-03		-------	8000/5 on route.
	4301		1000/3	8000/5 on route.
	4401-02		-------	3000/5 on route.
STK	ALL	OPNAV minima	1000/3	10500/5 30-degree pattern. 8500/5 20-degree pattern. 5000/5 10-degree pattern. Notes (1) and (5).
TAC	ALL	OPNAV minima	1000/3	OPNAV 3710.7U Wx mins for high work. Notes (1) and (5).
BFM/ SEM	ALL	OPNAV minima	1000/3	Engagement Wx directed by CNATRA Training Rules. Notes (1) and (5).
CQL	4101	Local	Local	
	4201-11	VFR	VFR	
	4390			
	4490	------	1000/3	Wx as outlined in CARQUAL OPLAN. Note (5).

NOTES:

(1) All day student solo flights shall take off no earlier than 30 minutes after official sunrise and land no later than 30 minutes prior to official sunset.

(2) All night student solo flights shall take off no earlier than 30 minutes after official sunset and land no later than 30 minutes prior to official sunrise.

(3) Student solo flights shall maintain VFR at all times prior to receiving an instrument rating.

(4) NFM route requires visual contact with the ground, at least five miles visibility, and shall be flown below any existing ceiling.

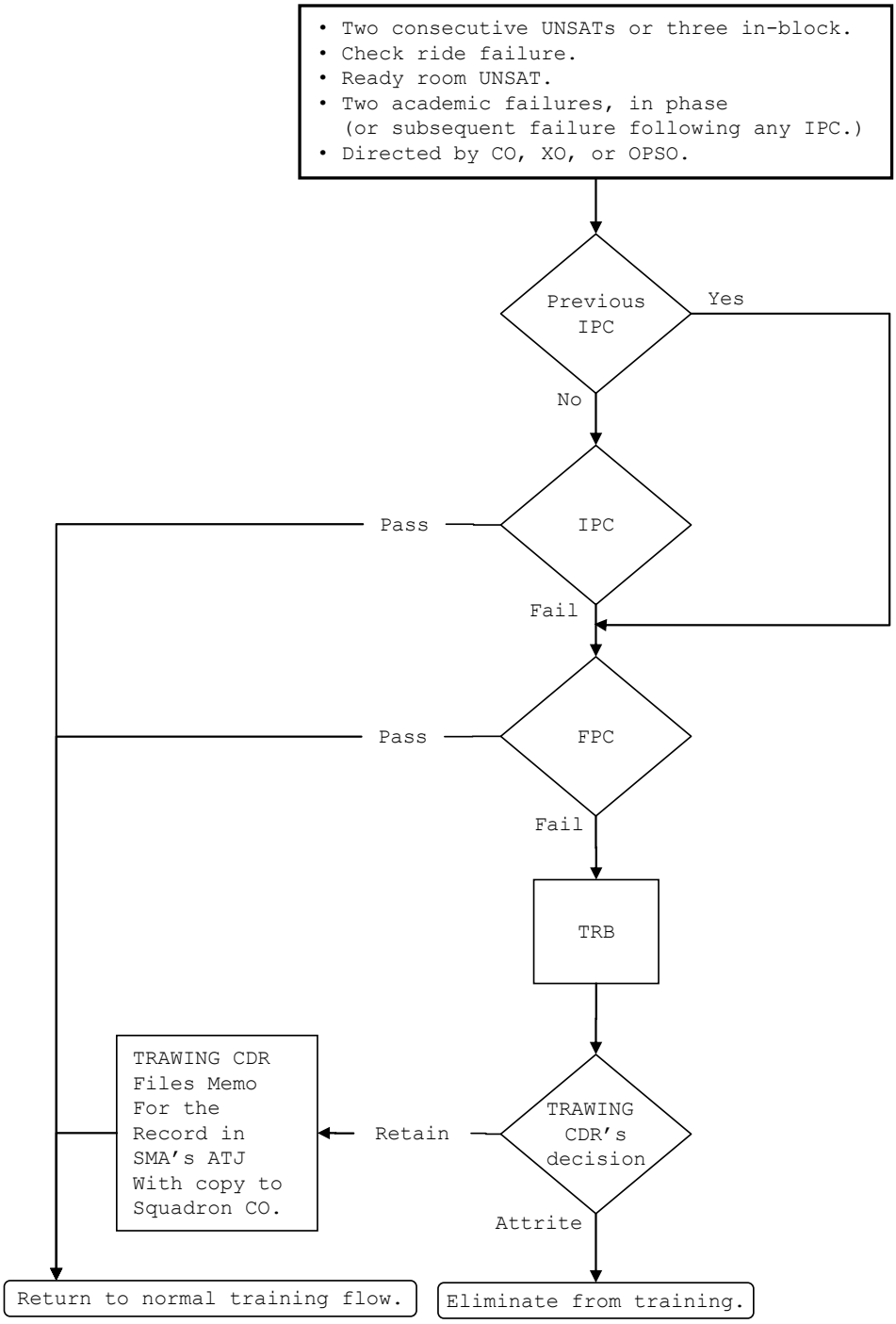
(5) Student solo flights may be launched with weather between 500/2 and 1000/3 with the expressed consent of the squadron commanding officer. This authority cannot be delegated.

(6) At least two events from FRM4101 through FRM4105 and one event from DIV4101 through DIV4104 shall require local weather adequate for takeoff running rendezvous and formation break at the field.

(7) FAM4490 shall be flown with visual reference to the ground.

d. Aircraft/Simulator Interchangeability. Simulator events may be conducted in the aircraft when the simulator is unavailable for extended periods of time.

MPTS PROGRESS CHECK TRAINING REVIEW PROCESS



BLANK PAGE

Chapter II

Ground Training

Block #	Media	Title	Events	Hrs	Category
ASI01	Lect/MIL	Aviation Student Indoctrination	12	7.9	ASI

1. Prerequisites

a. ASI0101-2 (any order) prior to ASI0103-6.

b. ASI0103-6 (any order) prior to ASI0107.

c. ASI0107-8 (in order) prior to ASI0109.

d. FCL4490, NFM4201, and TAC4201 prior to ASI0110 (Intermediate Jet only).

e. AN4602, NFR4201, ON4402, ON4301, SEM4201 and CQL4490 prior to ASI0111 (Advanced Strike only).

f. CQL4490 prior to ASI0112 (E-2/C-2 only).

2. Events

ASI0101	Lect	Commanding Officer's Welcome Aboard	1.3
ASI0102	Lect	Squadron Check-in	1.5
ASI0103	MIL	Introduction to Safety Procedures	1.0
ASI0104	Lect	Ground Rules	0.3
ASI0105	Lect	Introduction to TIMS I	0.5
ASI0106	Lect	Introduction to CAI	0.5
ASI0107	MIL	Introduction to IFT/OFT	1.5
ASI0108	Lect	Introduction to Part Task Trainer	0.5
ASI0109	Lect	Introduction to TIMS II	0.5

2. Events (Cont)

ASI0110	Admin	Squadron Checkout – Intermediate Jet	0.1
ASI0111	Admin	Squadron Checkout – Advanced Strike	0.1
ASI0112	Admin	Squadron Checkout – Intermediate E-2/C-2	0.1

3. Syllabus Notes

a. ASI0107 must be complete prior to any syllabus or practice simulator event.

b. Intermediate Jet – complete ASI0101-10.

c. Advanced Strike – complete ASI0101-11.

d. Intermediate E-2/C-2 – complete ASI0101-10 and ASI0112.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
ENG01	MIL/CAI	Engineering	30	33.2	ENG

1. Prerequisites. ASI0103-6.

2. Events

ENG0101	MIL	Introduction to T-45C Configuration	1.3
ENG0102	MIL	Electrical System	1.3
ENG0103	CAI	Electrical System Malfunctions	0.7
ENG0104	MIL	Engine and Related Systems	1.5
ENG0105	CAI	Engine and Related Systems Malfunctions	1.4
ENG0106	CAI	Engine System Malfunctions	0.7
ENG0107	MIL	Aircraft Fuel System	0.9
ENG0108	CAI	Fuel System Malfunctions	0.5
ENG0109	MIL	Hydraulic System	1.0
ENG0110	CAI	Hydraulic System Malfunctions	1.0
ENG0111	MIL	Hydraulic Subsystems	1.8
ENG0112	CAI	Hydraulic Subsystem Malfunctions	1.0
ENG0113	MIL	Flight Control System	1.3
ENG0114	CAI	Flight Control System Malfunctions	0.7
ENG0115	MIL	Egress System	1.0
ENG0116	CAI	Egress System Malfunctions	0.5
ENG0117	MIL	ECS/Pressurization and OBOGS	0.9
ENG0118	CAI	ECS/Pressurization and OBOGS Malfunctions	0.5

2. Events (Cont)

ENG0119	MIL	Flight Instruments	1.7
ENG0120	CAI	Flight Instrument Malfunctions	0.8
ENG0121	MIL	CNI System	1.7
ENG0122	CAI	CNI System Malfunctions	1.0
ENG0123	MIL	Other T-45C Systems	1.0
ENG0124	MIL	INS/GPS Operation and Concepts	1.5
ENG0125	CAI	Display System and Malfunctions	1.5
ENG0126	MIL	Engine Start Procedures	1.0
ENG0127	CAI	Engineering Review I	2.0
ENG0128	MIL	Engineering Review II	1.0
ENG0129	CAI Test	Engineering Block Exam I	1.0
ENG0130	CAI Test	Engineering Block Exam II	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
AER01	CAI/MIL	Aerodynamics	7	7.5	Aero

1. Prerequisites. ASI0103-6.

2. Events

AER0101	CAI	General Aeronautics Review	0.5
AER0102	MIL	High Speed Flight	1.0
AER0103	MIL	Slow Speed Flight, Stall and Spin, and AOA System	1.5
AER0104	MIL	Stability	0.5
AER0105	CAI	Engine Thrust and Thrust Curve Review	0.5
AER0106	MIL	NATOPS Performance Charts	2.5
AER0107	CAI Test	Aeronautics Block Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
MET01	CAI/MIL	Meteorology	4	4.8	Metro

1. Prerequisites. ASI0103-6.

2. Events

MET0101	CAI	Review of Basic Meteorological Principles	1.0
MET0102	MIL	Meteorology and Flight Planning	2.3
MET0103	MIL	Meteorology Review	0.5
MET0104	CAI Test	Meteorology Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
NAV01	Lab/MIL/ CAI	Instrument Navigation	12	13.0	INAV

1. Prerequisites. ASI0103-6.

2. Events

NAV0101	LAB	Review of FLIP and FAA Publications	1.8
NAV0102	MIL	Introduction to INAV and Voice Procedures	1.0
NAV0103	CAI	Use and Operation of TACAN, VOR, VOR/DME	0.8
NAV0104	CAI	Components and Characteristics of the Instrument Landing System-ILS	0.8
NAV0105	CAI	TACAN/VOR Navigation and Holding Procedures	0.8
NAV0106	MIL	Departure and Terminal Procedures	1.0
NAV0107	CAI	Interpretation of High Altitude Instrument Approach Plates	0.8
NAV0108	LAB	Fuel, Weather, and Alternate Airfield Planning Lab	1.2
NAV0109	LAB	Flight Planning - Departure	0.8
NAV0110	LAB	Flight Planning - Enroute	1.0
NAV0111	LAB	Practical Problems	1.0
NAV0112	CAI Test	Instrument Navigation Exam	2.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
ON01	Class	ONAV Ground School	5	20.5	ONAV1

1. Prerequisites. Intermediate Jet (ASI0110).

2. Events

ON0101	Lect	Introduction to ONAV	3.0
ON0102	Lab	Computer Route Construction I	5.5
ON0103	Lab	Computer Route Construction II	7.0
ON0104	Lect	ONAV Review	1.0
ON0105	P/P Exam	ONAV Exam (includes lab)	4.0

3. Syllabus Note. Students shall not be scheduled for other events while in ONAV Ground School.

4. Discuss Items. None.

Chapter III

NATOPS Training

This chapter does not apply to Intermediate Jet, Advanced Strike, or Intermediate E-2/C-2 students.

BLANK PAGE

Chapter IV

Contact Training

1. Matrices. The following matrix is an overview of the entire Contact training category. The category includes Familiarization, Out-of-Control Flight, Night Familiarization, FCLP, and E-2/C-2 Familiarization stages. The purpose of these matrices is to provide the SNA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Familiarization Stage MIF

Simulator/Device Event
Check Flight Event

FAMILIARIZATION STAGE MANEUVER ITEM FILE													
CTS REF	**MANEUVER**	**FAM3103**	**FAM2101**	**FAM3204**	**FAM4103**	**FAM4203**	**FAM4304**	**FAM2201**	**OCF3101**	**OCF4101**	**FAM4490**	**FAM4501**	**FAM4601**
1	General Knowledge/ Procedures	3+	4+	4+	3+	4+	4+	4+	3+	4+	4+	4+	4+
2	Emergency Procedures	3+	3+	3+	3+	3+	3+	3+	3+	3	3+	3	3+
3	Headwork/ Situational Awareness	2+	3+	3+	2+	3+	3+	3+	3+	3+	3+	3+	3+
4	Basic Airwork	3+	3+	3+	3+	3+	4+	3+	3+	1	4+	1+	4+
5	Mission Planning/ Briefing/ Debriefing	3+	3+	4+	3+	3+	4+	3+	3+	4+	4+	4+	4+

MIF continued on next page.

FAMILIARIZATION STAGE MANEUVER ITEM FILE													
CTS REF	**MANEUVER**	**FAM3103**	**FAM2101**	**FAM3204**	**FAM4103**	**FAM4203**	**FAM4304**	**FAM2201**	**OCF3101**	**OCF4101**	**FAM4490**	**FAM4501**	**FAM4601**
6	Communications	3+	3+	3+	3+	3+	4+	3+	4+	1	4+	1+	4+
7	Ground Operations	3+	3+	3+	3+	3+	4+	3+	4+	4+	4+	1+	4+
8	Flight Admin	2+	3+	3+	2+	3+	4+	3+	3+	1	4+	1+	4+
2	Start Malfunctions	3+	3+	3+				3+					
2	Ground Emergencies	3+	3+	3+				3+					
2	Aborted Takeoff	3+	3+	3+				3+					
2	Takeoff EPs		3+	3+				3+					
2	Engine EPs	3+	3+	3+				3+					
2	Flight Control EPs		3+					3+					
2	Gear EPs		3+					3+					
2	Electrical EPs	3+	3+	3+				3+					
2	Hydraulic EPs		3+	3+				3+					
2	ECS EPs		3+					3+					
2	Fuel System EPs		3+					3+					
2	Ejection		3+					3+					
2	Swerve/Blown Tire on Landing		3+	3+				3+					
2	Short-field Arrestment	3+	3+	3+				3+					
2	Rejected Landing/Go-Around		3+	3+									

MIF continued on next page.

FAMILIARIZATION STAGE MANEUVER ITEM FILE													
CTS REF	**MANEUVER**	**FAM3103**	**FAM2101**	**FAM3204**	**FAM4103**	**FAM4203**	**FAM4304**	**FAM2201**	**OCF3101**	**OCF4101**	**FAM4490**	**FAM4501**	**FAM4601**
2	Lost Communica-tions	3+		3+									
10	Takeoff	3+	3+	3+	3+	3+	4+	3+	4+	4+	4+	1+	4+
11	Departure Procedure	3+	3+	3+	3+	3+	4+	3+	4+	4+	4+	1+	4+
8	Course Rules	2+		3+	2+	3+	4+		3	3	4+	1+	
8	Area Fam	1+			1+								
25	Turn Pattern	3+			4+								
25	Slow Flight Maneuver	3+			4+								
29	Accelerated Stall	3+			3+								
29	Break Turn Stall	3+			3+								
29	Power Off Stall	3+			3+								
29	Landing Attitude Maneuver	3+			4+								
29	Landing Attitude Stall	2+			3+								
29	Approach Turn Stall	2+			3+								
29	Stall Series			3+			4+				4+		
29	Pattern Stall and Recovery			3+					3+				

MIF continued on next page.

FAMILIARIZATION STAGE MANEUVER ITEM FILE													
CTS REF	**MANEUVER**	**FAM3103**	**FAM2101**	**FAM3204**	**FAM4103**	**FAM4203**	**FAM4304**	**FAM2201**	**OCF3101**	**OCF4101**	**FAM4490**	**FAM4501**	**FAM4601**
26	Vertical Recovery			3+	3+		4+				4+		
26	Min Radius Turn			3+	3+		3+				3+		
27	Aileron Roll	3+			3+								
27	Wingover	3+			3+								
27	Barrel Roll	3+			3+								
27	Aerobatics			3+			3+				3+	1+	
27	Squirrel Cage			3+			3+				3+	1+	
28	Unusual Attitude Recovery			3+	3+		4+				4+		
29	High AOA/ Deep Stall Investiga-tion/Rudder-induced Departure								3+	1+			
29	70-Degree Nose-High Departure								3+	1+			
29	110-Degree Nose-High Departure								3+	1+			
29	90-Degree Nose-High Departure								3+				
29	Lateral Stick Adverse Yaw Departure								3+	1+			

MIF continued on next page.

FAMILIARIZATION STAGE MANEUVER ITEM FILE													
CTS REF	**MANEUVER**	**FAM3103**	**FAM2101**	**FAM3204**	**FAM4103**	**FAM4203**	**FAM4304**	**FAM2201**	**OCF3101**	**OCF4101**	**FAM4490**	**FAM4501**	**FAM4601**
3	Stuck Throttle Approach								3+				
13	Descent/Field Entry	3+	3+	3+	3+	3+	4+	3+			4+	1+	4+
22	Straight-in Approach			1+			1+	3					
22	Downwind Entry			1+			1+	3					
17 18	IFR Recovery to VFR Pattern			1+				3					
21	Precautionary Approach(es)		2+	3+	2+	3	3+	3+	3+	1	3+	1	3
22	VFR Landing Pattern	3+	3+	3+	2+	3+	3+	3+	3+	1	3+	1+	3+
23	Field Carrier Landing	2+		2+	2+	2+	3+		2+	1	3+	1+	3+
23	NF Touch-and-Go			3+		3+	3+		3+		3+		
23	FF Roll-and-Go	3+		3+	3+	3+	3+				3+	1	3
23	NF Roll-and-Go			3+		3+							
23	Crosswind Landings			2+	2	3	3			1	3	1	3
24	Waveoff	3+		3+	3+	3	3		3		3+	1	3
23	Full-Stop Landing	3+		3+	3+	3+	4+		4+	1+	4+	1+	4+
	Special Syllabus Requirements				1								

3. Night Familiarization Stage MIF

Simulator/Device Event
Check Flight Event

NIGHT FAMILIARIZATION STAGE MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**NFM3101**	**NFM4102**	**NFM4201**
1	General Knowledge/Procedures	3+	4+	4+
2	Emergency Procedures	3+	3+	3
3	Headwork/Situational Awareness	3+	3+	3+
4	Basic Airwork	3+	4+	4+
5	Mission Planning/Briefing/Debriefing	3+	4+	4+
6	Communications	3+	4+	4+
7	Ground Operations	3+	3+	1
8	Flight Admin	3+	4+	4+
2	Takeoff Emergencies	3+		
2	In-Flight Emergencies	3+		
2	App/Landing Emergencies	3+		
10	Takeoff	3+	3+	1
11	Departure	3+	3+	1
8	Course Rules	3+	4+	4+
14	Visual Navigation	3+	4+	4+
14	Dead Reckoning	3+	4+	4+
13	Descent/Field Entry	3+	4+	4+
22	VFR Landing Pattern	3+	3+	1
23	Field Carrier Landing	2+	3+	1
23	NF Touch-and-Go	3+	3+	
23	FF Roll-and-Go	3+	3+	
23	Crosswind Landings	3	3	1
52 24	Waveoff	3+	4+	1
23	Full-Stop Landing	3+	4+	1

4. FCLP Stage MIF

Simulator/Device Event
Check Flight Event

FCLP MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**FCL3101**	**FCL4101**	**FCL4201**	**FCL2101**	**FCL4305**	**FCL4490**
1	General Knowledge/ Procedures	4+	4+	4+	4+	1+	4+
2	Emergency Procedures	3+	3	1	4+	1+	3
3	Headwork/Situational Awareness	4+	4+	4+	4+	1+	4+
4	Basic Airwork	3+	4+	4+	4+	1+	4+
5	Mission Planning/ Briefing/Debriefing	4+	4+	1+	4+	1+	4+
6	Communications	3+	4+	1+	4+	1+	4+
7	Ground Operations	3+	4+	1+	4+	1+	4+
8	Flight Admin	4+	4+	1+	4+	1+	4+
2	Ground Emergencies				3+		
2	Aborted Takeoff				3		
2	Takeoff EPs				3		
2	Engine EPs				3		
2	Flight Control EPs				3		
2	Gear EPs				3+		
2	Electrical EPs				3		
2	Hydraulic EPs				3		
2	ECS EPs				3		
2	Fuel System EPs				3		
2	Ejection				3+		
2	Swerve/Blown Tire on Landing	3+			3+		

MIF continued on next page.

FCLP MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**FCL3101**	**FCL4101**	**FCL4201**	**FCL2101**	**FCL4305**	**FCL4490**
2	Short-field Arrestment	3+			3+		
2	Bingo	3+			3+		
10	Takeoff	4+	4+	1+	4+	1+	4+
11	Departure	3+	4+	1	4+	1+	4+
12	Enroute Navigation	3+	4	1	4+	1	4
13	Descent/Field Entry	3+	4+	1+	4+	1+	4+
29	Pattern Stall/Recovery	3+					
52 23	FCLP Pattern	3+	3+	1+	3+	1+	3+
52 23	Start Position	2+	3+	1+	2+	1+	3+
52 23	AOA Control	2+	3+	1+		1+	3+
52 23	Glideslope Control	2+	3+	1+		1+	3+
52 23	Power Control	2+	3+	1+		1+	3+
52 23	Lineup Control	2+	3+	1+		1+	3+
52 23	Error Detection/Correction	2+	3+	1+		1+	3+
52	Response to LSO Calls	3+		1+		1+	4+
52 23	Bolter/Touch-and-Go Technique	3+	3+	1+	3+	1+	4+
52 23	Field Carrier Landing	2+	3+	1+	2+	1+	3+
23	NF Touch-and-Go		3+				
23	FF Roll-and-Go		3+				

MIF continued on next page.

FCLP MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**FCL3101**	**FCL4101**	**FCL4201**	**FCL2101**	**FCL4305**	**FCL4490**
52 24	Waveoff	3+	3	1+	3+	1+	4+
23	Full-Stop Landing	4	4+	1+	4	1+	4+
	Special Syllabus Requirements	1		1			

5. E-2/C-2 Familiarization Stage MIF

E-2/C-2 FAMILIARIZATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**FAM4702**	**NFM4301**
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	3	3
3	Headwork/Situational Awareness	4+	4+
4	Basic Airwork	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+
6	Communications	4+	4+
7	Ground Operations	4+	4+
8	Flight Admin	4+	4+
10	Takeoff	4+	4+
11	Departure	4+	4+
13	Descent/Field Entry	4+	4+
21	Precautionary Approach	3	
22	VFR Landing Pattern	4+	4+
23	Field Carrier Landings	3+	3+
23	NF Touch-and-Go	3+	
23	FF Roll-and-Go	4+	4+
23	Crosswind Landings	3	3
24	Waveoff	4	4
23	Full-Stop Landing	4+	4+

Block #	Media	Title	Events	Hrs	Category
CR12	MIL/CAI	Course Rules	2	4.0	CR2

1. Prerequisite. CR1101.

2. Events

CR1201	MIL	Course Rules	2.0
CR1202	CAI Test	Course Rules Exam	2.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
FAM11	MIL/CAI	Familiarization Flight Procedures	3	7.7	FAM1

1. Prerequisites

   a. RI1106.

   b. CR1202.

2. Events

FAM1101	MIL	Familiarization Flight Procedures I	3.4
FAM1102	MIL	Familiarization Flight Procedures II	3.3
FAM1103	CAI Test	Familiarization Flight Procedures Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
OCF11	MIL/CAI	OCF Flight Procedures	2	2.0	OCF1

1. Prerequisite. FAM1103.

2. Events

OCF1101	MIL	Out-of-Control Flight	1.0
OCF1102	CAI Test	OCF Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
NA11	Lect/Exam	NATOPS	3	6.0	NATOPS

1. Prerequisite. FAM1103.

2. Events

NA1101	MIL	NATOPS Review	2.0
NA1102	P/P Exam	NATOPS Open-Book Exam	2.0
NA1103	P/P Exam	NATOPS Closed-Book Exam and SOP Exam	2.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
NFM11	MIL/CAI	Night Familiarization Flight Procedures	3	3.5	NFM1

1. Prerequisite. FAM1103.

2. Events

NFM1101	MIL	Night FAM Flight Procedures	1.3
NFM1102	MIL	Night Emergency Procedures	1.2
NFM1103	CAI Test	Night FAM Procedures Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
FCL11	MIL/CAI	FCLP Flight Procedures	3	2.5	FCLP

1. Prerequisites

   a. IR1103.

   b. FRM1106.

   c. NFM1103.

2. Events

FCL1101	MIL	Carrier Qualification Landing (FCLP) Procedures	1.0
FCL1102	MIL	Night FCLP Procedures	0.5
FCL1103	CAI Test	FCLP Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	H/X
FAM31	OFT	Familiarization Simulators	3	4.5	1.5

1. Prerequisites

   a. BI4103.

   b. FAM1103.

2. Syllabus Notes. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on the indicated event:

   FAM3101
   Area familiarization, level flight accelerate/decelerate, overhead pattern entry (break), waveoff, taxi-to-line, and shutdown.

   FAM3102
   NWS failure, wheel brake failure, generator malfunction/emergencies, overhead pattern entry (break), one-half flap arrested landing (roll-in, fly in), taxi-to-line, and shutdown.

   FAM3103
   Engine fire during takeoff, abort, lost communications situation, electrical emergencies, overhead pattern entry (break), taxi-to-line, and shutdown.

3. Special Syllabus Requirements. None.

4. Discuss Items

   FAM3101
   QOD, parking brake failure, lost aircraft, lost communications, loss of ECS temperature control, and OBOGS malfunction.

   FAM3102
   QOD, flap indicator failure, landing gear indicator failure, trim indicator failure, and swerve on touchdown.

   FAM3103
   QOD, fuel flow indicator failure, IFF failure, and long-field arrestment.

5. Block MIF

CTS REF	MANEUVER	FAM3103
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	2+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	2+
2	Start Malfunctions	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
2	Engine EPs	3+
2	Electrical EPs	3+
2	Short-field Arrestment	3+
2	Lost Communications	3+
10	Takeoff	3+
11	Departure Procedure	3+
8	Course Rules	2+
8	Area Fam	1+
25	Turn Pattern	3+
25	Slow Flight Maneuver	3+
29	Accelerated Stall	3+
29	Break Turn Stall	3+
29	Power Off Stall	3+
29	Landing Attitude Maneuver	3+
29	Landing Attitude Stall	2+
29	Approach Turn Stall	2+
27	Aileron Roll	3+
27	Wingover	3+

MIF continued on next page.

CTS REF	MANEUVER	FAM3103
27	Barrel Roll	3+
13	Descent/Field Entry	3+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	2+
23	FF Roll-and-Go	3+
24	Waveoff	3+
23	Full-Stop Landing	3+

Block #	Media	Title	Events	Hrs	H/X
FAM21	OFT	Familiarization Emergency Procedures	1	1.5	1.5

1. Prerequisite. FAM3103.

2. Syllabus Notes. The student will perform the following procedures IAW FTI, NATOPS, and SOP on the indicated event: start malfunction/emergency (any), failure to reach line speed, abort situations (any), takeoff emergency (any), one gear unsafe down, NWS caution light illumination airborne, tailpipe overheat, cabin pressurization failure, trim malfunctions, tail hook malfunctions, overhead PA, straight-in PA, abeam PA, anti-skid failure, blown tire during field landing, swerve on touchdown, field-arrested landing with blown tire, locked-in low altitude compressor stall, ejection (low altitude), fuel system emergencies (any), electrical emergencies (any), hydraulic malfunction/emergencies (any), flight control emergencies (any), one-half flap field-arrested landing (roll-in, fly-in), rejected landing/go-around, and landing with NWS failure.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, brake pressure lights illuminate airborne, OBOGS malfunctions, weight-on-wheels prox switch failure (AOA indexers with aircraft on landing rollout), and arrested landing.

5. Block MIF

CTS REF	MANEUVER	FAM2101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
2	Start Malfunctions	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
2	Takeoff EPs	3+
2	Engine EPs	3+
2	Flight Control EPs	3+
2	Gear EPs	3+
2	Electrical EPs	3+
2	Hydraulic EPs	3+
2	ECS EPs	3+
2	Fuel System EPs	3+
2	Ejection	3+
2	Swerve/Blown Tire on Landing	3+
2	Short-field Arrestment	3+
2	Rejected Landing/Go-Around	3+
10	Takeoff	3+
11	Departure Procedure	3+
13	Descent/Field Entry	3+
21	Precautionary Approach(es)	2+
22	VFR Landing Pattern	3+

Block #	Media	Title	Events	Hrs	H/X
FAM32	OFT	Familiarization Simulators	4	6.0	1.5

1. Prerequisite. FAM2101.

2. Syllabus Notes. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on the indicated event:

FAM3201
OLF operations, blown tire on takeoff, abort, waypoint navigation, hydraulic emergencies, lost communications, straight-in approach, swerve on landing rollout, and taxi-to-line and shut down.

FAM3202
Failure to reach line speed, abort, crosswind takeoff, engine emergencies, CNI failure, inadvertent IMC, downwind entry, blown tire during field landing, and field-arrested landing with blown tire.

FAM3203
IFR recovery to visual pattern and engine surge/compressor stall.

FAM3204
Suspend GINA alignment on powerup, and rejected landing/go-around.

3. Special Syllabus Requirements. None.

4. Discuss Items

FAM3201
QOD and warning/caution tones.

FAM3202
QOD, lost canopy, and aircraft configurations for field arrestments.

FAM3203
QOD.

FAM3204
QOD and aircraft systems.

5. Block MIF

CTS REF	MANEUVER	FAM3204
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
2	Start Malfunctions	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
2	Takeoff EPs	3+
2	Engine EPs	3+
2	Electrical EPs	3+
2	Hydraulic EPs	3+
2	Swerve/Blown Tire on Landing	3+
2	Short-field Arrestment	3+
2	Rejected Landing/Go-Around	3+
2	Lost Communications	3+
10	Takeoff	3+
11	Departure Procedure	3+
8	Course Rules	3+
29	Stall Series	3+
29	Pattern Stall and Recovery	3+
26	Vertical Recovery	3+
26	Min Radius Turn	3+
27	Aerobatics	3+
27	Squirrel Cage	3+
28	Unusual Attitude Recovery	3+

MIF continued on next page.

CTS REF	MANEUVER	FAM3204
13	Descent/Field Entry	3+
22	Straight-in Approach	1+
22	Downwind Entry	1+
17 18	IFR Recovery to VFR Pattern	1+
21	Precautionary Approach(es)	3+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	2+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	3+
23	NF Roll-and-Go	3+
23	Crosswind Landings	2+
24	Waveoff	3+
23	Full-Stop Landing	3+

Block #	Media	Title	Events	Hrs	H/X
FAM41	T-45	Familiarization	3	3.9	1.3

1. Prerequisites

a. FAM3204.

b. RI3204.

2. Syllabus Notes

a. Brief 2+00 hours prior to takeoff for FAM4101.

b. Walk 45 minutes prior to takeoff for all flights in FAM41 block.

c. Fly events from the front cockpit.

d. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on the indicated event:

FAM4102
Overhead recovery (break), and abeam PA.

FAM4103
Precautionary approach (straight-in, overhead, or abeam), and simulated short-field arrestment (directional control in question) in full-flap configuration to avoid overstress.

e. Student shall perform a full-stop landing with roll-out to the end of the runway on two separate events within FAM41 through FAM43 blocks prior to FAM4490.

3. Special Syllabus Requirements. During FAM4101, IP shall demonstrate aircraft exterior preflight, area familiarization, abeam PA, postflight aircraft inspection, and simulated short-field arrestment (directional control in question) in full-flap configuration to avoid aircraft overstress.

4. Discuss Items

FAM4101
QOD, engine surge/compressor stall, crosswind landing technique, and inadvertent engine shutdown (finger lifts).

FAM4102
QOD, engine surge/compressor stall, and PA configuration management.

FAM4103
QOD and short-field arrestment procedures.

5. Block MIF

CTS REF	MANEUVER	FAM4103
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	2+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	2+
10	Takeoff	3+
11	Departure Procedure	3+
8	Course Rules	2+
8	Area Fam	1+
25	Turn Pattern	4+
25	Slow Flight Maneuver	4+
29	Accelerated Stall	3+
29	Break Turn Stall	3+
29	Power Off Stall	3+
29	Landing Attitude Maneuver	4+
29	Landing Attitude Stall	3+
29	Approach Turn Stall	3+
26	Vertical Recovery	3+
26	Min Radius Turn	3+
27	Aileron Roll	3+
27	Wingover	3+

MIF continued on next page.

CTS REF	MANEUVER	FAM4103
27	Barrel Roll	3+
28	Unusual Attitude Recovery	3+
13	Descent/Field Entry	3+
21	Precautionary Approach(es)	2+
22	VFR Landing Pattern	2+
23	Field Carrier Landing	2+
23	FF Roll-and-Go	3+
23	Crosswind Landings	2
24	Waveoff	3+
23	Full-Stop Landing	3+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
FAM42	T-45	Familiarization Landing Pattern	3	3.0	1.0

1. Prerequisite. FAM4103.

2. Syllabus Notes

a. On-wing instructor not required for FAM42 block.

b. Student must have a minimum of 60 FCLP-type landings prior to FAM4490. If this requirement is not met, warmup FAM4286 flights shall be awarded as necessary.

c. Fly events from front cockpit.

d. Two of the three following maneuvers are desired on each flight in FAM42 block (Wx permitting): straight-in PA, overhead PA, or abeam PA.

e. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on FAM4201-3: simulated short-field arrestment landing (with/without directional control) in full-flap configuration to avoid aircraft overstress.

3. Special Syllabus Requirements. None.

4. Discuss Items

FAM4201-3
QOD, swerve on touchdown, go-around procedure, ground ejection, and ejection envelope.

5. Block MIF

CTS REF	MANEUVER	FAM4203
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
10	Takeoff	3+
11	Departure Procedure	3+
8	Course Rules	3+
13	Descent/Field Entry	3+
21	Precautionary Approach(es)	3
22	VFR Landing Pattern	3+
23	Field Carrier Landing	2+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	3+
23	NF Roll-and-Go	3+
23	Crosswind Landings	3
24	Waveoff	3
23	Full-Stop Landing	3+

Block #	Media	Title	Events	Hrs	H/X
FAM43	T-45	Familiarization	4	5.2	1.3

1. Prerequisite. FAM4103.

2. Syllabus Notes

a. Fly events from the front cockpit.

b. The student shall fly the following maneuvers on every flight: break turn stall, landing attitude stall, and approach turn stall.

c. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on the indicated event:

FAM4301
Two of the three following maneuvers desired (Wx permitting): straight-in PA, overhead PA, or abeam PA.

FAM4302
SNA must have flown at least one straight-in PA, one overhead PA, and one abeam PA prior to completion of FAM4302.

FAM4303
Precautionary approach to a full-stop (practice PAs to a full-stop shall only be performed when dual).

FAM4304
RTB without TACAN or waypoint (Wx permitting), two of the three following maneuvers desired (Wx permitting): straight-in precautionary approach, overhead precautionary approach, or abeam precautionary approach. Two precautionary approaches must be flown to a full-stop prior to completion of FAM4304 (practice PAs to a full-stop shall only be performed when dual).

d. Student must have a minimum of 60 FCLP-type landings prior to FAM4490. If this requirement is not met, warmup FAM4386 flights shall be awarded as necessary.

3. Special Syllabus Requirements. None.

4. Discuss Items

FAM4301
QOD and electrical system.

FAM4302
QOD and hydraulic system.

FAM4303
QOD, engine/accessory gear box, PA to full-stop (approach versus ground idle on rollout).

FAM4304
QOD and fuel system.

5. Block MIF

CTS REF	MANEUVER	FAM4304
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure Procedure	4+
8	Course Rules	4+
29	Stall Series	4+
26	Vertical Recovery	4+
26	Min Radius Turn	3+
27	Aerobatics	3+
27	Squirrel Cage	3+

MIF continued on next page.

CTS REF	MANEUVER	FAM4304
28	Unusual Attitude Recovery	4+
13	Descent/Field Entry	4+
22	Straight-in Approach	1+
22	Downwind Entry	1+
21	Precautionary Approach(es)	3+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	3+
23	NF Touch-and-go	3+
23	FF Roll-and-Go	3+
23	Crosswind Landings	3
24	Waveoff	3
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
FAM22	OFT	Familiarization Emergency Procedures	1	1.3	1.3

1. Prerequisite. FAM4302.

2. Syllabus Notes. The student will perform the following procedures IAW FTI, NATOPS, and SOP on this event: start malfunction/emergency (any), taxi emergencies, takeoff emergency (any), engine emergencies, fuel system emergencies (any), electrical emergencies (any), ECS malfunction/emergency, hydraulic system malfunction/emergencies (any), flight control emergencies (any), GINA malfunction, ejection (low altitude), approach/landing emergencies, and postlanding malfunctions/emergencies.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, lost aircraft situations, and start sequence.

5. Block MIF

CTS REF	MANEUVER	FAM2201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
2	Start Malfunctions	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
2	Takeoff EPs	3+

MIF continued on next page.

CTS REF	MANEUVER	FAM2201
2	Engine EPs	3+
2	Flight Control EPs	3+
2	Gear EPs	3+
2	Electrical EPs	3+
2	Hydraulic EPs	3+
2	ECS EPs	3+
2	Fuel System EPs	3+
2	Ejection	3+
2	Swerve/Blown Tire on Landing	3+
2	Short-Field Arrestment	3+
10	Takeoff	3+
11	Departure Procedure	3+
13	Descent/Field Entry	3+
22	Straight-in Approach	3
22	Downwind Entry	3
17 18	IFR Recovery to VFR Pattern	3
21	Precautionary Approach(es)	3+
22	VFR Landing Pattern	3+

Block #	Media	Title	Events	Hrs	H/X
OCF31	OFT	Out-of-Control Flight Simulator	1	1.5	1.5

1. Prerequisites

    a. OCF1102.

    b. FAM4302.

2. Syllabus Notes. The student will perform the following procedures IAW FTI, NATOPS, and SOP on this event: airstart, blown tire during field landing, and field-arrested landing with blown tire. Two stuck throttle approaches are required (high, middle, or low).

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, runaway trim, engine flameout, ejection situations, locked-in compressor stall, airstart, and NATOPS Chapter 11.

5. Block MIF

CTS REF	MANEUVER	OCF3101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	3+
10	Takeoff	4+
11	Departure Procedure	4+
8	Course Rules	3
29	Pattern Stall and Recovery	3+
29	High AOA/Deep Stall Investigation/Rudder-induced Departure	3+
29	70-Degree Nose-High Departure	3+
29	110-Degree Nose-High Departure	3+
29	90-Degree Nose-High Departure	3+
29	Lateral Stick Adverse Yaw Departure	3+
3	Stuck Throttle Approach	3+
21	Precautionary Approach(es)	3+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	2+
23	NF Touch-and-Go	3+
24	Waveoff	3
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
OCF41	T-45	Out-of-Control Flight	1	0.7	0.7

1. Prerequisite. OCF3101.

2. Syllabus Notes.

a. Fly this event from the front cockpit.

b. Only those items conducted prior to aircraft departures are graded.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and NATOPS Chapter 11.

5. Block MIF

CTS REF	MANEUVER	OCF4101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	3+
4	Basic Airwork	1
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	1
7	Ground Operations	4+
8	Flight Admin	1
10	Takeoff	4+
11	Departure Procedure	4+
8	Course Rules	3
29	High AOA/Deep Stall Investigation/Rudder-induced Departure	1+
29	70-Degree Nose-High Departure	1+
29	110-Degree Nose-High Departure	1+
29	Lateral Stick Adverse Yaw Departure	1+
21	Precautionary Approach(es)	1
22	VFR Landing Pattern	1
23	Field Carrier Landing	1
23	Crosswind Landings	1
23	Full-Stop Landing	1+

Block #	Media	Title	Events	Hrs	H/X
FAM44	T-45	Familiarization Safe-for-Solo Check Flight	1	1.3	1.3

1. Prerequisites

a. FAM4203.

b. FAM4304.

c. FAM2201.

d. OCF4101.

e. NA1103.

2. Syllabus Notes

a. Jacket review required.

b. Event shall be flown from the front cockpit with visual reference to the ground.

c. The student shall, at a minimum, fly the following maneuvers in the stall series: break turn stall, landing attitude stall, and approach turn stall.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and aircraft systems.

5. Block MIF

CTS REF	MANEUVER	FAM4490
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure Procedure	4+
8	Course Rules	4+
29	Stall Series	4+
26	Vertical Recovery	4+
26	Min Radius Turn	3+
27	Aerobatics	3+
27	Squirrel Cage	3+
28	Unusual Attitude Recovery	4+
13	Descent/Field Entry	4+
21	Precautionary Approach(es)	3+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	3+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	3+
23	Crosswind Landings	3
24	Waveoff	3+
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
FAM45	T-45	Familiarization Solo	1	1.2	1.2

1. Prerequisite. FAM4490.

2. Syllabus Notes

a. At a minimum, General Knowledge/Procedures, Headwork/ Situational Awareness, and Mission Planning/Briefing/Debriefing shall be graded by a qualified instructor.

b. Intentional spins, accelerated stalls, unusual attitudes, approach turn stalls, and vertical recoveries are prohibited maneuvers for solo students.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, solo brief, and lost aircraft situations.

5. Block MIF

CTS REF	MANEUVER	FAM4501
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	3+
4	Basic Airwork	1+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	1+
7	Ground Operations	1+
8	Flight Admin	1+
10	Takeoff	1+
11	Departure Procedure	1+
8	Course Rules	1+
27	Aerobatics	1+
27	Squirrel Cage	1+
13	Descent/Field Entry	1+
21	Precautionary Approach(es)	1
22	VFR Landing Pattern	1+
23	Field Carrier Landing	1+
23	FF Roll-and-Go	1
23	Crosswind Landings	1
24	Waveoff	1
23	Full-Stop Landing	1+

Block #	Media	Title	Events	Hrs	H/X
FAM46	T-45	Familiarization Landing Pattern	1	0.7	0.7

1. Prerequisite. FAM4501.

2. Syllabus Notes

a. Fly this event from the front cockpit.

b. May be flown anytime after FAM4501.

c. Two of the three following maneuvers desired (Wx permitting): straight-in PA, overhead PA, or abeam PA.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, ECS, NWS/launch bar, and canopy/fog condensation.

5. Block MIF

CTS REF	MANEUVER	FAM4601
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure Procedure	4+
13	Descent/Field Entry	4+
21	Precautionary Approach(es)	3
22	VFR Landing Pattern	3+
23	Field Carrier Landing	3+
23	FF Roll-and-Go	3
23	Crosswind Landings	3
24	Waveoff	3
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
NFM31	OFT	Night Familiarization	1	1.5	1.5

1. Prerequisites

    a. NFM1103.

    b. FAM4501.

2. Syllabus Notes. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on this event: cockpit lighting failure, total electrical failure, trim malfunction in landing pattern, inadvertent IMC, lost communications, swerve on touchdown, night abort, instrument precautionary approach, and pattern stall and recovery.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and lost aircraft situations.

5. Block MIF

CTS REF	MANEUVER	NFM3101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
2	Takeoff Emergencies	3+
2	In-Flight Emergencies	3+
2	App/Landing Emergencies	3+
10	Takeoff	3+
11	Departure	3+
8	Course Rules	3+
14	Visual Navigation	3+
14	Dead Reckoning	3+
13	Descent/Field Entry	3+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	2+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	3+
23	Crosswind Landings	3
24	Waveoff	3+
23	Full-Stop Landing	3+

Block #	Media	Title	Events	Hrs	H/X
NFM41	T-45	Night Familiarization	2	3.0	1.5

1. Prerequisite. NFM3101.

2. Syllabus Notes

a. Fly these events from the front cockpit.

b. Events shall take off no earlier than 30 minutes after official sunset.

c. Student must perform one night break at the field in block.

d. A minimum of 12 night field carrier landings are required in block.

e. NFM4102 - jacket review required.

3. Special Syllabus Requirements. None.

4. Discuss Items

NFM4101-2
QOD.

5. Block MIF

CTS REF	MANEUVER	NFM4102
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	3+
8	Flight Admin	4+
10	Takeoff	3+
11	Departure	3+
8	Course Rules	4+
14	Visual Navigation	4+
14	Dead Reckoning	4+
13	Descent/Field Entry	4+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	3+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	3+
23	Crosswind Landings	3
24	Waveoff	4+
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
NFM42	T-45	Night Familiarization Solo	1	1.3	1.3

1. Prerequisite. NFM4102.

2. Syllabus Notes

a. Event shall take off no earlier than 30 minutes after official sunset.

b. All maneuvers except landings will be graded by the chase pilot.

c. A minimum of six landings are required for completion.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, solo brief, and waypoint navigation.

5. Block MIF

CTS REF	MANEUVER	NFM4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	1
8	Flight Admin	4+
10	Takeoff	1
11	Departure	1
8	Course Rules	4+
14	Visual Navigation	4+
14	Dead Reckoning	4+
13	Descent/Field Entry	4+
22	VFR Landing Pattern	1
23	Field Carrier Landing	1
23	Crosswind Landings	1
52 24	Waveoff	1
23	Full-Stop Landing	1

Block #	Media	Title	Events	Hrs	H/X
FCL31	OFT	Field Carrier Landing Practice	1	1.3	1.3

1. Prerequisites

a. FCL1103.

b. IR4290.

c. NFM4102.

d. FRM4501.

2. Syllabus Notes

a. Minimum of 180 front-seat, FCLP-type landings required to begin stage.

b. FCL3101 shall be flown prior to FCL4201.

c. Up to three FCL/CQL events may be scheduled per day.

3. Special Syllabus Requirements. Demonstrate CVN flight operations.

4. Discuss Items. QOD, scan technique, field Delta pattern, and "Dirty Bingo."

5. Block MIF

CTS REF	MANEUVER	FCL3101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+

MIF continued on next page.

CTS REF	MANEUVER	FCL3101
7	Ground Operations	3+
8	Flight Admin	4+
2	Swerve/Blown Tire on Landing	3+
2	Short-Field Arrestment	3+
2	Bingo	3+
10	Takeoff	4+
11	Departure	3+
12	Enroute Navigation	3+
13	Descent/Field Entry	3+
29	Pattern Stall/Recovery	3+
52 23	FCLP Pattern	3+
52 23	Start Position	2+
52 23	AOA Control	2+
52 23	Glideslope Control	2+
52 23	Power Control	2+
52 23	Lineup Control	2+
52 23	Error Detection/Correction	2+
52	Response to LSO Calls	3+
52 23	Bolter/Touch and Go Technique	3+
52 23	Field Carrier Landing	2+
52 24	Waveoff	3+
23	Full-Stop Landing	4
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
FCL41	T-45	Night Landing Pattern	1	0.7	0.7

1. Prerequisites

a. FAM4601.

b. NFM1103.

2. Syllabus Notes

a. FCL4101 shall be flown within two weeks of FCL4201.

b. FCL4101 shall be flown from the front cockpit at night. LSO not required on station.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD.

5. Block MIF

CTS REF	MANEUVER	FCL4101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4
13	Descent/Field Entry	4+

MIF continued on next page.

CTS REF	MANEUVER	FCL4101
52 23	FCLP Pattern	3+
52 23	Start Position	3+
52 23	AOA Control	3+
52 23	Glideslope Control	3+
52 23	Power Control	3+
52 23	Lineup Control	3+
52 23	Error Detection/Correction	3+
52 23	Bolter/Touch-and-Go Technique	3+
52 23	Field Carrier Landing	3+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	3+
52 24	Waveoff	3
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
FCL42	T-45	FCLP Safe-for-Solo	1	0.7	0.7

1. Prerequisites

a. FCL3101.

b. FCL4101.

2. Syllabus Notes

a. Fly this event from the front cockpit.

b. Flight will be an evaluation of the safety of the student to solo in the landing pattern.

c. Up to three FCL/CQL events may be scheduled per day.

d. Headwork/situational awareness, general knowledge/ procedures, and basic airwork are the only graded items on FCL4201.

e. An SOP Exam is required to be completed prior to beginning FCL42.

3. Special Syllabus Requirements. Demonstrate proper waveoff technique and lineup adjustments.

4. Discuss Items. QOD, communications, preflight/ground operations, and pattern entry.

5. Block MIF

CTS REF	MANEUVER	FCL4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	1
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	1+

MIF continued on next page.

CTS REF	MANEUVER	FCL4201
6	Communications	1+
7	Ground Operations	1+
8	Flight Admin	1+
10	Takeoff	1+
11	Departure	1
12	Enroute Navigation	1
13	Descent/Field Entry	1+
52 23	FCLP Pattern	1+
52 23	Start Position	1+
52 23	AOA Control	1+
52 23	Glideslope Control	1+
52 23	Power Control	1+
52 23	Lineup Control	1+
52 23	Error Detection/Correction	1+
52	Response to LSO Calls	1+
52 23	Bolter/Touch-and-Go Technique	1+
52 23	Field Carrier Landing	1+
52 24	Waveoff	1+
23	Full-Stop Landing	1+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
FCL21	OFT	Emergency Procedures (FCLP)	1	1.5	1.5

1. Prerequisite. FCL4201.

2. Syllabus Notes

a. FCL2101 shall be flown after FCL4201.

b. The student will perform the following procedures IAW FTI, NATOPS, and SOP on this event: in-flight emergencies (any), lost communications in pattern, NWS failure on deck, brake failure on deck, GINA failures, Bingo profile, swerve after touchdown, blown tire on landing, short-field arrestment with blown tire, and ejection.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and ditching situations.

5. Block MIF

CTS REF	MANEUVER	FCL2101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
2	Ground Emergencies	3+
2	Aborted Takeoff	3
2	Takeoff EPs	3
2	Engine EPs	3
2	Flight Control EPs	3

MIF continued on next page.

CTS REF	MANEUVER	FCL2101
2	Gear EPs	3+
2	Electrical EPs	3
2	Hydraulic EPs	3
2	ECS EPs	3
2	Fuel System EPs	3
2	Ejection	3+
2	Swerve/Blown Tire on Landing	3+
2	Short-field Arrestment	3+
2	Bingo	3+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
13	Descent/Field Entry	4+
52 23	FCLP Pattern	3+
52 23	Start Position	2+
52 23	Bolter/Touch-and-Go Technique	3+
52 23	Field Carrier Landing	2+
52 24	Waveoff	3+
23	Full-Stop Landing	4

Block #	Media	Title	Events	Hrs	H/X
FCL43	T-45	Field Carrier Landing Practice	5	3.0	0.6

1. Prerequisite. FCL4201.

2. Syllabus Notes

a. All events in block will be flown solo.

b. LSOs will evaluate and critique each individual pass as well as landing trends; landing grades are at the sole discretion of the LSOs.

c. A day front-seat landing within the previous two days is required before the first solo flight. After block FCL43 has begun, a front-seat landing within three days is required for a day solo.

d. A day/night front-seat landing within 24 hours is required for a night solo in block.

e. Two night periods are desired in order to have a minimum of three night FCLP periods by the completion of CQL4390.

f. Up to three FCL/CQL events may be scheduled per day.

g. Night FCLP shall not be flown prior to FCL4302.

h. A minimum of six FCLP-type landings are required on each flight.

3. Special Syllabus Requirements. None.

4. Discuss Items

FCL4301
QOD, pattern procedures, and arrestment procedures.

FCL4302
QOD and scan techniques.

FCL4303
QOD, glideslope corrections, and trend analysis.

FCL4304
QOD and lineup correction.

FCL4305
QOD and trend analysis.

5. Block MIF

CTS REF	MANEUVER	FCL4305
1	General Knowledge/Procedures	1+
2	Emergency Procedures	1+
3	Headwork/Situational Awareness	1+
4	Basic Airwork	1+
5	Mission Planning/Briefing/ Debriefing	1+
6	Communications	1+
7	Ground Operations	1+
8	Flight Admin	1+
10	Takeoff	1+
11	Departure	1+
12	Enroute Navigation	1
13	Descent/Field Entry	1+
52 23	FCLP Pattern	1+
52 23	Start Position	1+
52 23	AOA Control	1+
52 23	Glideslope Control	1+
52 23	Power Control	1+

MIF continued on next page.

CTS REF	MANEUVER	FCL4305
52 23	Lineup Control	1+
52 23	Error Detection/Correction	1+
52	Response to LSO Calls	1+
52 23	Bolter/Touch-and-Go Technique	1+
52 23	Field Carrier Landing	1+
52 24	Waveoff	1+
23	Full-Stop Landing	1+

Block #	Media	Title	Events	Hrs	H/X
FCL44	T-45	Field Carrier Landing Practice Check Flight	1	0.6	0.6

1. Prerequisites

a. FCL4305.

b. FCL2101.

2. Syllabus Notes

a. This is a solo event.

b. LSOs will evaluate and critique each individual pass as well as landing trends; landing grades are at the sole discretion of the LSO.

c. A day front-seat landing within the previous three days is required.

d. Up to three FCL/CQL events may be scheduled per day.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, Case I/II, and Bingo profile.

5. Block MIF

CTS REF	MANEUVER	FCL4490
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+

MIF continued on next page.

CTS REF	MANEUVER	FCL4490
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4
13	Descent/Field Entry	4+
52 23	FCLP Pattern	3+
52 23	Start Position	3+
52 23	AOA Control	3+
52 23	Glideslope Control	3+
52 23	Power Control	3+
52 23	Lineup Control	3+
52 23	Error Detection/Correction	3+
52	Response to LSO Calls	4+
52 23	Bolter/Touch-and-Go Technique	4+
52 23	Field Carrier Landing	3+
52 24	Waveoff	4+
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
FAM47	T-45	E-2/C-2 Familiarization	2	1.4	0.7

1. Prerequisite. Intermediate Jet.

2. Syllabus Notes. Fly events from the front cockpit.

3. Special Syllabus Requirements. None.

4. Discuss Items

FAM4701
QOD and self-contained, straight-in approach.

FAM4702
QOD and flight emergency resources.

5. Block MIF

CTS REF	MANEUVER	FAM4702
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
21	Precautionary Approach	3
22	VFR Landing Pattern	4+
23	Field Carrier Landings	3+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	4+
23	Crosswind Landings	3
24	Waveoff	4
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
NFM43	T-45	E-2/C-2 Night Familiarization	1	0.8	0.8

1. Prerequisite. Intermediate Jet.

2. Syllabus Notes

a. Fly event from the front cockpit.

b. A minimum of 10 field-carrier landings with an OLS are required for completion.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and night instrument scan.

5. Block MIF

CTS REF	MANEUVER	NFM4301
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
22	VFR Landing Pattern	4+
23	Field Carrier Landings	3+
23	FF Roll-and-Go	4+
23	Crosswind Landings	3
24	Waveoff	4
23	Full-Stop Landing	4+

BLANK PAGE

Chapter V

Instrument Training

1. Matrices. The following matrices are an overview of the entire Instrument training category. The category includes Cockpit Orientation/Emergency Procedures, Basic Instruments, Radio Instruments, Airways Navigation, Instrument Rating, and Advanced Airways Navigation stages. The purpose of these matrices is to provide the SNA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Cockpit Orientation/Emergency Procedures Stage MIF

Simulator/Device Event

COCKPIT ORIENTATION/EMERGENCY PROCEDURES MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**CO3102**	**CO3202**	**EP2104**
1	General Knowledge/Procedures	3+	3+	3+
2	Emergency Procedures			3+
3	Headwork/Situational Awareness	3+	3+	3+
4	Basic Airwork		1	1+
5	Mission Planning/Briefing/Debriefing	3+	3+	3+
6	Communications	2+	2+	2+
7	Ground Operations	2+	3+	3+
8	Flight Admin	3+	3+	3+
2	Start Malfunctions			3+
2	Ground Emergencies			3+
2	Aborted Takeoff			3+
2	Takeoff EPs			3+
2	Engine EPs			3+
2	Flight Control EPs			3+

MIF continued on next page.

COCKPIT ORIENTATION/EMERGENCY PROCEDURES MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**CO3102**	**CO3202**	**EP2104**
2	Gear EPs			3+
2	Electrical EPs			3+
2	Hydraulic EPs			3+
2	ECS EPs			3+
2	Fuel System EPs			3+
2	Ejection			3+
11	Departure	1		
13	Recovery	1		
25	Turn Pattern		1	
25	One-Half Standard Rate Turn (SRT)		1	
25	Level Speed Change		1	
25	Slow Flight Maneuver		1	
25	S-1 Pattern		1	
16	Penetration		1	
18	TACAN Approach		1	
17	PAR Approach		1	

3. Basic Instruments Stage MIF

Simulator/Device Event

BASIC INSTRUMENTS MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**BI3104**	**BI3205**	**BI4103**
1	General Knowledge/Procedures	4+	4+	4+
2	Emergency Procedures	3+	3+	3+
3	Headwork/Situational Awareness	3+	3+	3+
4	Basic Airwork	3+	3+	3+
5	Mission Planning/Briefing/Debriefing	4+	4+	4+
6	Communications	3+	3+	3+
7	Ground Operations	3+	3+	3+
10	Takeoff	3+	3+	1+
11	Departure	3+	3+	3+
12 25	Climbs/Descents	3+	3+	3+
12	Enroute Navigation	3+	3+	3+
12	Intercept/Maintain Course	3+	3+	3+
12	Point-to-Point Navigation	2	2	2
12	Arcing	3+	3+	3+
25	Partial Panel Airwork		3+	
25	Turn Pattern	3+	4+	4+
25	One-Half Standard Rate Turn	3+	4+	
25	Standard Rate Turn	3+	4+	
25	Level Speed Change	3+	4+	
25	Level Speed Change in One-Half SRT	3+	4+	
25	Slow Flight Maneuver	3+	4	
25	S-1 Pattern	3+	4+	
25	S-3 Pattern	3+	4+	4+
29	Stall Series		4+	3+

MIF continued on next page.

BASIC INSTRUMENTS MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**BI3104**	**BI3205**	**BI4103**
27	Wingover		3+	
27	Barrel Roll		3+	
28	Unusual Attitudes		4+	4+
28	Partial Panel Unusual Attitudes		4+	
16	High Altitude Penetration		3+	3+
18	TACAN/VOR DME Approach		3+	3+
18 5	Partial Panel TACAN/VOR DME Approach		3+	
18	VOR Approach		3+	
18	ASR Approach		3+	3+
17	ILS Approach		3+	3
17 5	Partial Panel ILS Approach		3+	
17	PAR Approach	3+	3+	3
17 18 5	Partial Panel GCA Approach		3+	3+
17 18 5	Partial Panel Approach			3+
17	No-Gyro GCA		3+	3+
20	Missed Approach	3+	3+	3+
20 5	Partial Panel Missed Approach		3+	3+
	Special Syllabus Requirements			1

4. Radio Instruments Stage MIF

Simulator/Device Event

RADIO INSTRUMENTS MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**RI3104**	**RI3204**	**RI4106**
1	General Knowledge/Procedures	4+	4+	4+
2	Emergency Procedures	3+	3+	3+
3	Headwork/Situational Awareness	3+	3+	3+
4	Basic Airwork	3+	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+	4+
6	Communications	3+	3+	3+
7	Ground Operations	3+	3+	4+
8	Flight Admin	3+	3+	3+
10	Takeoff	3+	4+	1+
11	Departure	3+	4+	4+
12 25	Climbs/Descents	3+		
12	Enroute Navigation		4+	3+
12	Intercept/Maintain Course	3+		
12	Point-to-Point Navigation	3+	3+	3+
12	Arcing	3+		
15	Holding	3+	4+	4+
16	High Altitude Penetration	3+	4+	4+
18	TACAN/VOR DME Approach	3+	4+	4+
18 5	Partial Panel TACAN/VOR DME Approach	3+	3+	3+
18	VOR Approach		4+	
18	ASR Approach	3+	4+	
18 5	Partial Panel ASR Approach			3+

MIF continued on next page.

RADIO INSTRUMENTS MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**RI3104**	**RI3204**	**RI4106**
17	ILS Approach	3+	4+	4+
17 5	Partial Panel ILS Approach	3+	3+	3+
17 5	PAR Approach	3+	4+	4+
17 5	Partial Panel PAR Approach	3+	3+	3+
17 18 5	Partial Panel GCA Approach			3+
17 18 5	Partial Panel Approach	3+		
18	Localizer Approach	3+		
18 5	Partial Panel Localizer Approach		3+	
18	Localizer Back Course Approach		2	
21	Low Oil Approach		3+	3+
21	Min/Emergency Fuel Approach	3+		3+
17	No-Gyro GCA	3+	3+	3+
19	Circling Approach		3	1
19	Instrument-to-Visual Scan		3	
20	Missed Approach	3+	4+	4+
20 5	Partial Panel Missed Approach	3+	3+	3+

5. Airways Navigation Stage MIF

Simulator/Device Event

AIRWAYS NAVIGATION MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**AN3106**	**AN2101**	**AN4105**
1	General Knowledge/Procedures	4+	4+	4+
2	Emergency Procedures	3+	3+	3+
3	Headwork/Situational Awareness	3+	3+	3+
4	Basic Airwork	4+	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+	4+
6	Communications	3+	3+	3+
7	Ground Operations	4+	4+	4+
8	Flight Admin	4+	4+	4+
2	Start Malfunctions		3+	
2	Ground Emergencies		3+	
2	Aborted Takeoff		3+	
2	Takeoff EPs		3+	
2	Engine EPs		3+	
2	Flight Control EPs		3+	
2	Gear EPs		3+	
2	Electrical EPs		3+	
2	Hydraulic EPs		3+	
2	Lost Communications	4+	4+	
10	Takeoff	4+	4+	4+
11	Departure	4+	4+	4+
12	Enroute Navigation	4+		4+
12	Point-to-Point Navigation	3+		3+
18	Route/Destination Change	3+		3
15	Holding	4+		

MIF continued on next page.

AIRWAYS NAVIGATION MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**AN3106**	**AN2101**	**AN4105**
13	Descent/Field Entry	4+	4+	4+
12	STAR	3+		
17	Precision Approach	4+	4	4+
18	Non-Precision Approach	4+	4	4+
17 18 5	Partial Panel Approach	4+		4+
21	Min/Emergency Fuel Approach	4+		4+
21	Low Oil Approach	4+		4+
17	No-Gyro GCA	4+		4+
19	Circling Approach	3+		
20	Missed Approach	4+		4+
20 5	Partial Panel Missed Approach	4+		4+
23	Landing(s)	3		3+

6. Instrument Rating Stage MIF

Simulator/Device Event
Check Flight Event

INSTRUMENT RATING MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**IR3104**	**IR4102**	**IR4290**
1	General Knowledge/Procedures	4+	4+	4+
2	Emergency Procedures	3+	3+	3+
3	Headwork/Situational Awareness	4+	4+	4+
4	Basic Airwork	4+	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+	4+
6	Communications	4+	4+	4+
7	Ground Operations	4+	4+	4+
8	Flight Admin	4+	4+	4+
2	Lost Communications	4+		
10	Takeoff	4+	1+	1+
11	Departure	4+	4+	4+
12	Enroute Navigation	4+	4+	4+
12	Point-to-Point Navigation	3+	4+	4+
18	Route/Destination Change	3+	3	3
15	Holding	4+	4	4
13	Descent/Field Entry	4+	4+	4+
12	STAR	3+	4	4
17	Precision Approach	4+	4+	4+
18	Non-Precision Approach	4+	4+	4+
17 18 5	Partial Panel Approach	4+	4+	4+
21	Min/Emergency Fuel Approach	4+		
21	Emergency Instrument Approach	4+	4+	4+

MIF continued on next page.

INSTRUMENT RATING MANEUVER ITEM FILE				
CTS REF	**MANEUVER**	**IR3104**	**IR4102**	**IR4290**
21	Emergency Oil Approach	4+		
17	No-Gyro GCA	4+	4+	4+
19	Circling Approach	3		
20	Missed Approach	4+	4+	4+
205	Partial Panel Missed Approach	4+	4+	4+
19	Instrument-to-Visual Scan	3+		
23	Landing(s)	3		

7. Advanced Airways Navigation Stage MIF

Simulator/Device Event

ADVANCED AIRWAYS NAVIGATION MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**AN3201**	**AN4301**	**AN3301**	**AN4402**	**AN4501**	**AN4602**
1	General Knowledge/ Procedures	4+	4+	4+	4+	4+	1+
2	Emergency Procedures	3+	3	3+	3	3	3
3	Headwork/ Situational Awareness	3+	4+	4+	4+	4+	1+
4	Basic Airwork	4+	4+	4+	4+	4+	1+
5	Mission Planning/ Briefing/Debriefing	4+	4+	4+	4+	4+	4+
6	Communications	4+	4+	4+	4+	4+	1+
7	Ground Operations	4+	4+	4+	4+	4+	1+
2	Start Malfunctions			3+			
8	Flight Admin	4+	4+	4+	4+	4+	1+

MIF continued on next page.

ADVANCED AIRWAYS NAVIGATION MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**AN3201**	**AN4301**	**AN3301**	**AN4402**	**AN4501**	**AN4602**
10	Takeoff	4+	4+	4+	4+	4+	1+
11	Departure	4+	4+	4+	4+	4+	1+
12	Enroute Navigation	3+	4+	4+	4+	4+	1+
2	In-Flight EPs	3+		3+			
2	Lost Communications	3+		3+			
18	Route/Destination Change	3+		3+	3	3	
15	Holding			4	4	4	
16	High Altitude Penetration					4+	
12	STAR			3+			
13	Descent/Field Entry	3+	3+	4+	4+	4+	1+
17	Precision Approach	3+	4+	4+	4+	4+	1+
18	Non-precision Approach	3+	4+	4+	4+	4+	1+
17 18 5	Partial Panel Approach	3+		4+	4+		
21	Emergency Instrument Approach				4+		
20	Missed Approach	3+	4+		4+	4+	1+
17 18	Transition to Full-Flap-Off Inst Approach		3+				
23	Night Landing at Field without a Lens		3+				
19	Circling Approach-to-Land	3+					
23	Landings	3+	3+	3+	3+	3+	1+

Block #	Media	Title	Events	Hrs	Category
CR11	MIL	BI/RI Course Rules	1	0.5	CR1

1. Prerequisites. ASI0103-6.

2. Events

CR1101	MIL	BI/RI Course Rules	0.5

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
CRM11	MIL	Crew Resource Management	1	3.0	CRM

1. Prerequisites. ASI0103-6.

2. Events

CRM1101	MIL	Crew Resource Management	3.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
ORM11	MIL	Operational Risk Management	1	1.0	ORM

1. Prerequisites. ASI0103-6.

2. Events

ORM1101	Lect	Operational Risk Management	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
SEA11	MIL/Lect	NACES Flight Physiology	2	3.0	SEAT

1. Prerequisite. ENG0130.

2. Events

SEA1101	MIL	NACES Flight Physiology	2.0
SEA1102	Lect	Ejection Seat Lecture/NACES Preflight	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
CO11	CAI/MIL/ Lab	Cockpit Orientation	7	7.3	CO1

1. Prerequisites

   a. ENG0130.

   b. CO3202 prior to CO1106-7.

2. Events

CO1101	CAI	Engine Start and Poststart	1.0
CO1102	CAI	Multi-Function Display and Navigation System Operation	1.2
CO1103	CAI	Display System (HUD)	0.8
CO1104	CAI	Waypoint Navigation Procedures	1.2
CO1105	MIL	Velocity Vector	1.0
CO1106	CAI	Exterior Preflight Checks	0.6
CO1107	LAB	Aircraft Preflight	1.5

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
EP11	MIL/CAI	Emergency Procedures	11	14.5	EP1

1. Prerequisite. ENG0130.

2. Events

EP1101	MIL	Start, Ground, and Takeoff Emergency Procedures I	1.5
EP1102	CAI	Start, Ground, and Takeoff Emergency Procedures II	1.5
EP1103	MIL	Operational and Ejection Emergency Procedures	1.0
EP1104	MIL	Engine and Hydraulic Emergency Procedures I	1.5
EP1105	CAI	Engine and Hydraulic Emergency Procedures II	1.5
EP1106	CAI Test	Emergency Flight Procedures Exam I	1.0
EP1107	MIL	Canopy and Flight Control Emergency Procedures	1.0
EP1108	MIL	Electrical and Indicator Emergency Procedures I	1.5
EP1109	CAI	Electrical and Indicator Emergency Procedures II	1.5
EP1110	MIL	Operational and Landing Emergency Procedures	1.5
EP1111	CAI Test	Emergency Flight Procedures Exam II	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
BI11	MIL/CAI	Basic Instrument Flight Procedures	10	10.5	BIFP

1. Prerequisites

   a. AER0107.

   b. MET0104.

   c. NAV0112.

   d. ENG0130.

2. Events

BI1101	MIL	Instrument Takeoff and Climb with DP	1.3
BI1102	CAI	Introduction to Basic Instruments	0.7
BI1103	CAI	Instrument Turns	0.8
BI1104	CAI	Basic Flight Maneuvers and Transitions	0.8
BI1105	CAI	"S" Patterns	0.8
BI1106	MIL	Stalls, Unusual Attitudes and Aerobatics	1.1
BI1107	MIL	TACAN/VOR Procedures	1.5
BI1108	MIL	GCA/ILS Procedures	1.5
BI1109	MIL	Instrument Failures and GPS/INS Failures	1.0
BI1110	CAI Test	Basic Instrument Stage Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
RI11	MIL/CAI/ Lect	Radio Instrument Flight Procedures	6	10.5	RIFP

1. Prerequisites

   a. BI1110 prior to RI1101-5 (in order).

   b. NAV0112 prior to RI1106.

2. Events

RI1101	MIL	Introduction to Radio Instruments	2.5
RI1102	CAI	TACAN and VOR Procedures	0.5
RI1103	CAI	TACAN and VOR Holding Procedures	0.5
RI1104	CAI	TACAN/VOR/ILS/PAR/ASR Approach Procedures	1.0
RI1105	CAI Test	Radio Instrument Stage Exam	1.0
RI1106	Lect	JMPS Enroute Flight Planning	5.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
IR11	CAI/MIL/ Exam	Instrument Rating Flight Procedures	3	4.0	IRFP

1. Prerequisite. RI1106.

2. Events

IR1101	CAI	Meteorology Review	1.0
IR1102	MIL	Instrument Rules (IR) Review	2.0
IR1103	P/P Exam	Instrument Rating Open-Book Exam (Pencil)	1.0

3. Syllabus Note. IR4290 must be completed within 60 days of IR1103.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	H/X
CO31	IFT/OFT	Cockpit Orientation Simulators	2	3.0	1.5

1. Prerequisites

a. ASI0109.

b. SEA1102.

c. CO1105.

2. Syllabus Notes

a. Practice all checklists, applicable FTI briefings, radio calls, and basic aircraft control. Ensure student's checklist proficiency is adequate to proceed to flight operations.

b. Multiple items are listed as discuss items. However, due to time constraints, it may not be possible to discuss all items prior to the simulator event (SIM). Therefore, a **Discuss Item** may be addressed during or after the SIM.

c. The student will perform the following procedures IAW FTI, NATOPS, and SOP on the indicated event:

(1) CO3101. Inventory flight equipment, don flight equipment, canopy/ejection seat preflight, strap-in procedures, cockpit preflight checklist, prestart checklist, aircraft start, poststart checklist, pretaxi checklist, ground communications, taxi checklist, flight instrument checks, takeoff clearance, takeoff checklist, engine checks, takeoff, departure communications, 10,000-feet checks/15-minute report, descent/penetration checklist, landing checklist, after landing checklist, shutdown checklist, and normal egress procedures. Enter mission data into display system.

(2) CO3102. Don flight equipment, canopy/ejection seat preflight, strap-in procedures, blindfold cockpit check, cockpit preflight checklist, prestart checklist, aircraft start, poststart checklist, ground communications, taxi checklist, aircraft taxi, flight instrument checks, takeoff clearance, takeoff checklist, engine checks, takeoff, departure communications, 10,000-feet checks/15-minute report, enroute

communications, approach control communications, descent/penetration checklist, VFR approach-to-pattern initial, communications to tower, landing checklist, after landing checklist, after landing communications, shutdown checklist, and normal egress procedures.

3. Special Syllabus Requirements. None.

4. Discuss Items

CO3101
QOD, IFT operation, ground signals, final checker, and shutdown signals.

CO3102
QOD, OFT operation, ground signals, and final checker.

5. Block MIF

CTS REF	MANEUVER	CO3102
1	General Knowledge/Procedures	3+
3	Headwork/Situational Awareness	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	2+
7	Ground Operations	2+
8	Flight Admin	3+
11	Departure	1
13	Recovery	1

Block #	Media	Title	Events	Hrs	H/X
CO32	IFT/OFT	Cockpit Orientation Simulators	2	3.0	1.5

1. Prerequisite. CO3102.

2. Syllabus Notes

a. Basic airwork and flight maneuvers are not graded.

b. CO3201 and CO3202 should be flown with different instructors.

3. Special Syllabus Requirements. None.

4. Discuss Items

CO3201-2
QOD, control instruments, performance instruments, position instruments, instrument scan, and scan technique.

5. Block MIF

CTS REF	MANEUVER	CO3202
1	General Knowledge/Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	1
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	2+
7	Ground Operations	3+
8	Flight Admin	3+
25	Turn Pattern	1
25	One-Half Standard Rate Turn (SRT)	1
25	Level Speed Change	1
25	Slow Flight Maneuver	1
25	S-1 Pattern	1
16	Penetration	1
18	TACAN Approach	1
17	PAR Approach	1

Block #	Media	Title	Events	Hrs	H/X
EP21	IFT/OFT	Emergency Procedures	4	5.2	1.3

1. Prerequisites

a. CO3202.

b. ORM1101.

c. CRM1101.

d. EP1106.

e. EP1111 prior to EP2103.

2. Syllabus Notes. The student will perform the following procedures IAW FTI, NATOPS, and SOP on the indicated event:

a. EP2101. No READY light, wet start, low oil pressure on start, hot start, ground emergency communications, unsafe gear (up), fuel leak, LP fuel pump failure, boost pump failure, initial shot failure, engine fire no secondary indications, GINA failure, engine fire on shutdown, and emergency egress.

b. EP2102. Engine fire on start, hung start, GTS fire, trim malfunctions, engine fire with secondary indications, engine overspeed, engine flameout, airstart (high altitude), ECA failure (full trim), engine vibration, engine stalls, engine failure (seizure), oil pressure failure, ejection, and ground emergency communications.

c. EP2103. Hot start, bleed valve failure, engine fail on takeoff, generator failure, inverter failure, total electrical failure, uncommanded RAT extension, HYD 1 EDP Failure, HYD 2 EDP failure, HYD 1&2 fail RAT OK, total HYD failure, accumulator failure, CONTR AUG failure, emergency communications, and MFD failure.

d. EP2104. Blown tire during takeoff, runaway rudder trim, rudder hard-over, runaway stabilator trim, runaway aileron trim, aileron trim failure, speedbrake fails to retract, split flaps, pitot static malfunctions, main/nose gear unsafe down, gear emergency extend failure, brake accumulator failure, brake failure after touchdown, ECS failure, GINA failure, emergency communications, and ejection.

3. Special Syllabus Requirements. None.

4. Discuss Items

EP2101
QOD, canopy malfunctions, engine fire on deck, and airstart.

EP2102
QOD, ground ejection situations, engine stalls, short-field arrested landing, and go-around.

EP2103
QOD, gear door malfunctions, and long-field arrested landing.

EP2104
QOD, smoke/fumes in cockpit, rudder trim failure, stabilator trim failure, flaps fail to retract, slats fail to retract, flaps fail to extend, slats fail to extend, split slats, gear unsafe after extension, gear door malfunctions after extension, and go-around.

5. Block MIF

CTS REF	MANEUVER	EP2104
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	1+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	2+
7	Ground Operations	3+
8	Flight Admin	3+
2	Start Malfunctions	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
2	Takeoff EPs	3+
2	Engine EPs	3+
2	Flight Control EPs	3+
2	Gear EPs	3+
2	Electrical EPs	3+
2	Hydraulic EPs	3+
2	ECS EPs	3+
2	Fuel System EPs	3+
2	Ejection	3+

Block #	Media	Title	Events	Hrs	H/X
BI31	IFT/OFT	Basic Instrument Simulators	4	6.0	1.5

1. Prerequisites

a. BI1110.

b. CR1101.

c. EP2104.

2. Syllabus Notes

a. S-3 pattern and PAR approach will not be flown until BI3103.

b. During this block, students must fly at least two PAR approaches.

3. Special Syllabus Requirements. None.

4. Discuss Items

BI3101-2
QOD.

BI3103
QOD, main ADI failure, GINA malfunctions, turn-and-slip failure, HSI failure, and MFD failure.

BI3104
QOD.

5. Block MIF

CTS REF	MANEUVER	BI3104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
10	Takeoff	3+
11	Departure	3+
12 25	Climbs/Descents	3+
12	Enroute Navigation	3+
12	Intercept/Maintain Course	3+
12	Point-to-Point Navigation	2
12	Arcing	3+
25	Turn Pattern	3+
25	One-Half Standard Rate Turn	3+
25	Standard Rate Turn	3+
25	Level Speed Change	3+
25	Level Speed Change in One-Half SRT	3+
25	Slow Flight Maneuver	3+
25	S-1 Pattern	3+
25	S-3 Pattern	3+
17	PAR Approach	3+
20	Missed Approach	3+

Block #	Media	Title	Events	Hrs	H/X
BI32	IFT/OFT	Basic Instrument Simulators	5	7.5	1.5

1. Prerequisite. BI3104.

2. Syllabus Notes.

a. During this block, students must fly at least the approaches listed below:

High Altitude Penetration	3
TACAN/VOR DME	3 full panel
	1 partial panel
VOR	2
ASR	2
ILS	3 full panel
	1 partial panel
PAR	2 full panel
	1 partial panel
No-Gyro GCA	1

b. Only nonsystem point-to-points will be practiced in this block.

3. Special Syllabus Requirements. None.

4. Discuss Items

BI3201-5
QOD.

5. Block MIF

CTS REF	MANEUVER	BI3205
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/ Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
10	Takeoff	3+
11	Departure	3+
12 25	Climbs/Descents	3+
12	Enroute Navigation	3+
12	Intercept/Maintain Course	3+
12	Point-to-Point Navigation	2
12	Arcing	3+
25	Partial Panel Airwork	3+
25	Turn Pattern	4+
25	One-Half Standard Rate Turn	4+
25	Standard Rate Turn	4+
25	Level Speed Change	4+
25	Level Speed Change in One-Half SRT	4+
25	Slow Flight Maneuver	4
25	S-1 Pattern	4+
25	S-3 Pattern	4+
29	Stall Series	4+
27	Wingover	3+
27	Barrel Roll	3+

MIF continued on next page.

CTS REF	MANEUVER	BI3205
28	Unusual Attitudes	4+
28	Partial Panel Unusual Attitudes	4+
16	High Altitude Penetration	3+
18	TACAN/VOR DME Approach	3+
18 5	Partial Panel TACAN/VOR DME Approach	3+
18	VOR Approach	3+
18	ASR Approach	3+
17	ILS Approach	3+
17 5	Partial Panel ILS Approach	3+
17	PAR Approach	3+
17 18 5	Partial Panel GCA Approach	3+
17	No-Gyro GCA	3+
20	Missed Approach	3+
20 5	Partial Panel Missed Approach	3+

Block #	Media	Title	Events	Hrs	H/X
BI41	T-45	Basic Instruments	3	4.5	1.5

1. Prerequisites

a. BI3205

b. CO1107

2. Syllabus Notes

a. Fly events from the rear cockpit with hood.

b. BI4101 brief should begin 2+00 prior to scheduled takeoff.

c. BI4101 shall be conducted within the local working area and include S-3 pattern, timed turns, stalls, unusual attitudes and partial panel.

d. BI4102 shall fly only the following maneuvers:

Departure/SID	
TACAN/VOR DME Approach	1 full panel
ASR	1
ILS/PAR	1
PAR	1 partial panel
No-Gyro GCA	1

e. Only nonsystem point-to-points will be practiced in this block.

f. During this block, students must fly at least the maneuvers listed below:

High Altitude Penetration	1
TACAN/VOR DME	1 full panel
ASR	1 full panel
Precision Approaches (ILS, PAR)	4 full panel
PAR	1 partial panel
No-Gyro GCA	1

3. Special Syllabus Requirement. Instructor must demonstrate manup and seat preflight on BI4101.

4. Discuss Items

BI4101
QOD, RADALT usage, approach configurations, and compressor stall.

BI4102-3
QOD.

5. Block MIF

CTS REF	MANEUVER	BI4103
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
10	Takeoff	1+
11	Departure	3+
12 25	Climbs/Descents	3+
12	Enroute Navigation	3+
12	Intercept/Maintain Course	3+
12	Point-to-Point Navigation	2
12	Arcing	3+
25	Turn Pattern	4+
25	S-3 Pattern	4+
29	Stall Series	3+
28	Unusual Attitudes	4+
16	High Altitude Penetration	3+
18	TACAN/VOR DME Approach	3+
18	ASR Approach	3+

MIF continued on next page.

CTS REF	MANEUVER	BI4103
17	ILS Approach	3
17	PAR Approach	3
17 18 5	Partial Panel GCA Approach	3+
17 18 5	Partial Panel Approach	3+
17	No-Gyro GCA	3+
20	Missed Approach	3+
20 5	Partial Panel Missed Approach	3+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
RI31	IFT/OFT	Radio Instruments	4	6.0	1.5

1. Prerequisites

a. BI4103.

b. RI1105.

c. RI1106.

2. Syllabus Notes

a. Handouts listing the route of flight to plan and study for each simulator event shall be obtained by SNAs from book issue at the ground training building.

b. SNAs shall bring a copy of their DD-175 and single-engine jet log to all simulator events for instructor use.

c. RI3101 and RI3102 may be flown in either the IFT or the OFT.

d. RI3103 and RI3104 shall be flown in the OFT.

e. During this block, students must fly at least the approaches listed below:

High Altitude Penetration	
Approach	1
TACAN/VOR DME	1 full panel
	1 partial panel
ASR	1
ILS	1 full panel
	1 partial panel
PAR	1 full panel
	1 partial panel
Localizer	1
Min/Emergency Fuel Approach	1
No-Gyro GCA	1

3. Special Syllabus Requirements. None.

4. Discuss Items

RI3101
QOD, lost communications, and minimum/emergency fuel GCA.

RI3102
QOD and marker beacon failure.

RI3103-4
QOD and HSI failure.

5. Block MIF

CTS REF	MANEUVER	RI3104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
10	Takeoff	3+
11	Departure	3+
12 25	Climbs/Descents	3+
12	Intercept/Maintain Course	3+
12	Point-to-Point Navigation	3+
12	Arcing	3+
15	Holding	3+
16	High Altitude Penetration	3+
18	TACAN/VOR DME Approach	3+
18 5	Partial Panel TACAN/VOR DME Approach	3+
18	ASR Approach	3+

MIF continued on next page.

CTS REF	MANEUVER	RI3104
17	ILS Approach	3+
17 5	Partial Panel ILS Approach	3+
17	PAR Approach	3+
17 5	Partial Panel PAR Approach	3+
17 18 5	Partial Panel Approach	3+
18	Localizer Approach	3+
21	Min/Emergency Fuel Approach	3+
17	No-Gyro GCA	3+
20	Missed Approach	3+
20 5	Partial Panel Missed Approach	3+

Block #	Media	Title	Events	Hrs	H/X
RI32	IFT/OFT	Radio Instruments	4	6.0	1.5

1. Prerequisite. RI3104.

2. Syllabus Notes

a. RI3201 may be flown in either the IFT or the OFT; RI3202-4 shall be flown in the OFT.

b. RI3201 will introduce radar altimeter failure, VOR holding, localizer approach partial panel, and emergency oil instrument approach.

c. RI3202 will introduce visual takeoff low ceiling ITO, localizer back course approach (if able), and instrument-to-visual scan.

d. RI3203 will introduce direct routing and circling approach-to-land.

e. During this block, students must fly at least the approaches listed below:

High Altitude Penetration	1 full panel
	1 partial panel
TACAN/VOR DME	1 full panel
	1 partial panel
ILS	2 full panel
	1 partial panel
PAR	1 partial panel
GCA	2 full panel
Localizer	1 partial panel
Low Oil Approach	2
Circle-to-land approach	1

3. Special Syllabus Requirements. None.

4. Discuss Items

RI3201
QOD, marker beacon failure, and oil pressure warning.

RI3202-04
QOD.

5. Block MIF

CTS REF	MANEUVER	RI3204
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
12	Point-to-Point Navigation	3+
15	Holding	4+
16	High Altitude Penetration	4+
18	TACAN/VOR DME Approach	4+
18 5	Partial Panel TACAN/VOR DME Approach	3+
18	VOR Approach	4+
18	ASR Approach	4+
17	ILS Approach	4+
17 5	Partial Panel ILS Approach	3+
17	PAR Approach	4+
17 5	Partial Panel PAR Approach	3+
18 5	Partial Panel Localizer Approach	3+

MIF continued on next page.

CTS REF	MANEUVER	RI3204
18 5	Localizer Back Course Approach	2
21	Low Oil Approach	3+
17	No-Gyro GCA	3+
19	Circling Approach	3
19	Instrument-to-Visual Scan	3
20	Missed Approach	4+
20 5	Partial Panel Missed Approach	3+

Block #	Media	Title	Events	Hrs	H/X
RI41	T-45	Radio Instruments	6	9.6	1.6

1. Prerequisite. RI3204.

2. Syllabus Notes

a. Fly events from the rear cockpit with hood.

b. Students shall contact their instructor prior to brief to determine the route of flight to plan.

c. Students shall bring a copy of a completed DD-175 and jet log to the brief for instructor use during the flight.

d. During this block, students must fly at least the approaches listed below:

High Altitude Penetration	3
TACAN/VOR DME	2 full panel
	2 partial panel
ASR	2 partial panel
ILS	2 full panel
	2 partial panel
PAR	2 full panel
	1 partial panel
Low Oil Approach	2
Min Fuel/Emer Fuel Approach	2
No-Gyro GCA	2

e. Discuss and introduce a circle-to-land approach if able on one flight in this block. Emphasis shall be placed on instrument-to-visual scan procedures.

3. Special Syllabus Requirements. None.

4. Discuss Items

RI4101-6
QOD.

5. Block MIF

CTS REF	MANEUVER	RI4106
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
10	Takeoff	1+
11	Departure	4+
12	Enroute Navigation	3+
12	Point-to-Point Navigation	3+
15	Holding	4+
16	High Altitude Penetration	4+
18	TACAN/VOR DME Approach	4+
18 5	Partial Panel TACAN/VOR DME Approach	3+
18 5	Partial Panel ASR Approach	3+
17	ILS Approach	4+
17 5	Partial Panel ILS Approach	3+
17 5	PAR Approach	4+
17 5	Partial Panel PAR Approach	3+
17 18 5	Partial Panel GCA Approach	3+
21	Low Oil Approach	3+

MIF continued on next page.

CTS REF	MANEUVER	RI4106
21	Min/Emergency Fuel Approach	3+
17	No-Gyro GCA	3+
19	Circling Approach	1
20	Missed Approach	4+
205	Partial Panel Missed Approach	3+

Block #	Media	Title	Events	Hrs	H/X
AN31	IFT/OFT	Airways Navigation	6	9.0	1.5

1. Prerequisite. RI4106.

2. Syllabus Notes

a. Handouts listing the route of flight to plan and study for each simulator event shall be obtained by students from book issue at the ground training building.

b. Students shall bring a copy of their DD-175 and single-engine jet log to all simulator events for instructor use.

c. AN3101-6 may be flown prior to FAM stage.

d. The HUD will be available for use on all AN stage simulators.

e. AN3101 and AN3103 may be flown in either the IFT or OFT. AN3102 and AN3104-6 shall be flown in the OFT.

f. AN3104 will introduce unfamiliar field ground operations and erroneous GINA data.

g. AN3105 will introduce a STAR.

h. During this block, students shall fly at least the approaches listed below:

TACAN/VOR DME	2 full panel 1 partial panel
VOR	1 full panel 1 partial panel
ASR	2 full panel
ILS	3 full panel 1 partial panel
PAR	1 full panel 1 partial panel
No-Gyro GCA	2
STAR	1
Low Oil Approach	1
Min Fuel/Emergency Fuel Approach	1
Circle-to-Land	1

3. Special Syllabus Requirements. None.

4. Discuss Items

AN3101
QOD, weather criteria,lost communications, and enroute descent.

AN3102-6
QOD, enroute weather updates, and in-flight fuel calculations.

5. Block MIF

CTS REF	MANEUVER	AN3106
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	4+
3	Lost Communications	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
12	Point-to-Point Navigation	3+
18	Route/Destination Change	3+
15	Holding	4+
13	Descent/Field Entry	4+
12	STAR	3+
17	Precision Approach	4+
18	Non-Precision Approach	4+
17 18 5	Partial Panel Approach	4+
21	Min/Emergency Fuel Approach	4+
12	Low Oil Approach	4+
17	No-Gyro GCA	4+
19	Circling Approach	3+
20	Missed Approach	4+
20 5	Partial Panel Missed Approach	4+
23	Landings	3

Block #	Media	Title	Events	Hrs	H/X
AN21	IFT/OFT	Airways Navigation EP	1	1.3	1.3

1. Prerequisite. AN3106.

2. Syllabus Notes.

    a. The HUD will be available for use.

    b. AN2101 may be flown prior to FAM stage.

The student will perform the following procedures IAW FTI, NATOPS, and SOP on this event: start malfunction/emergency (any), takeoff emergency (any), engine flameout, electrical emergencies (any), HYD 2 EDP failure, CONTR AUG failure, runaway stabilator trim, engine fire (secondary indications), lost communications, ejection, main/nose gear unsafe down, brake accumulator failure, and postlanding emergencies.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD.

5. Block MIF

CTS REF	MANEUVER	AN2101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	4+
2	Start Malfunctions	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
2	Takeoff EPs	3+
2	Engine EPs	3+
2	Flight Control EPs	3+
2	Gear EPs	3+
2	Electrical EPs	3+
2	Hydraulic EPs	3+
2	Lost Communications	4+
10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
17	Precision Approach	4
18	Non-Precision Approach	4

Block #	Media	Title	Events	Hrs	H/X
AN41	T-45	Airways Navigation	5	8.0	1.6

1. Prerequisites

a. AN2101.

b. FAM4501.

2. Syllabus Notes

a. It is highly recommended that Navigation flights be conducted outside the local flying areas to the maximum extent possible.

b. Two out-and-in flights (outside the local area) are required in the AN/IR stages prior to IR4290. A cross-country with at least four legs may be substituted for this requirement.

c. Students shall contact their instructor prior to brief to determine the route of flight to plan.

d. Students shall bring a copy of a completed DD-175 and jet log to the brief for instructor use during the flight.

e. Two flights in block shall be flown from the front cockpit. Instructors should take into consideration student night landing currency when planning front-cockpit night flights. Remaining flights within block shall be flown from the rear cockpit with the instrument hood installed.

f. The HUD will be available for use on all front seat AN stage flights.

g. During this block, students shall fly at least the approaches listed below:

Precision Approach	4 full panel
	2 partial panel
Non-Precision Approach	4 full panel
	2 partial panel
Low Oil Approach	1
Min/Emer Fuel Approach	1
No-Gyro GCA	1

3. Special Syllabus Requirements. None.

4. Discuss Items

AN4101, AN4103, AN4104
QOD and in-flight emergencies.

AN4102, AN4105
QOD, in-flight emergencies, and lost communications.

5. Block MIF

CTS REF	MANEUVER	AN4105
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
12	Point-to-Point Navigation	3+
18	Route Destination Change	3
13	Descent/Field Entry	4+
17	Precision Approach	4+
18	Non-Precision Approach	4+
17 18 5	Partial Panel Approach	4+
21	Min/Emergency Fuel Approach	4+

MIF continued on next page.

CTS REF	MANEUVER	AN4105
21	Low Oil Approach	4+
17	No-Gyro GCA	4+
20	Missed Approach	4+
20 5	Partial Panel Missed Approach	4+
23	Landing(s)	3+

Block #	Media	Title	Events	Hrs	H/X
IR31	IFT/OFT	Instrument Rating	4	6.0	1.5

1. Prerequisites

a. AN4105.

b. IR1103.

2. Syllabus Notes

a. Handouts listing the route of flight to plan and study for each simulator event shall be obtained by students from book issue at the ground training building.

b. Students shall bring a copy of their DD-175 and single-engine jet log to all simulator events for instructor use.

c. IR3101 may be flown in either the IFT or OFT. IR3102-4 shall be flown in the OFT.

d. The HUD shall not be utilized.

e. During this block, students must fly at least the approaches and maneuvers listed below:

TACAN/VOR DME	2 full panel
	2 partial panel
VOR	1 full panel
ASR	2 partial panel
ILS	1 full panel
	1 partial panel
PAR	1 full panel
Min Fuel/Emergency Fuel Approach	1
Route/Destination Change	3
STAR	1
Low Oil Approach	1
No-Gyro GCA	1

3. Special Syllabus Requirements. None.

4. Discuss Items

IR3101-4
QOD.

5. Block MIF

CTS REF	MANEUVER	IR3104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
2	Lost Communications	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
12	Point-to-Point Navigation	3+
18	Route/Destination Change	3+
15	Holding	4+
13	Descent/Field Entry	4+
12	STAR	3+
17	Precision Approach	4+
18	Non Precision Approach	4+
17 18 5	Partial Panel Approach	4+
21	Min/Emergency Fuel Approach	4+
21	Emergency Instrument Approach	4+
21	Emergency Oil Approach	4+

MIF continued on next page.

CTS REF	MANEUVER	IR3104
17	No-Gyro GCA	4+
19	Circling Approach	3
20	Missed Approach	4+
20 5	Partial Panel Missed Approach	4+
19	Instrument-to-Visual Scan	3+
23	Landing(s)	3

Block #	Media	Title	Events	Hrs	H/X
IR41	T-45	Instrument Rating	2	3.2	1.6

1. Prerequisite. IR3104.

2. Syllabus Notes

a. It is highly recommended that Navigation flights be conducted outside the local flying areas to the maximum extent possible.

b. Two out-and-in flights (outside the local area) are required in the AN/IR syllabus prior to IR4290. A cross-country with at least four legs may be substituted for this requirement.

c. Students shall contact their instructor prior to brief to determine the route of flight to plan.

d. Students shall bring a copy of a completed DD-175 and jet log to the brief for instructor use during the flight.

e. These events will be flown from the rear cockpit with hood.

f. During this block, students must fly at least the approaches listed below:

TACAN/VOR DME	1 full panel
	1 partial panel
ILS	1 partial panel
GCA	1 full panel
	1 partial panel
No-Gyro GCA	1
Emergency Instrument Approach	1

3. Special Syllabus Requirements. None.

4. Discuss Items

IR4101-2
QOD, lost communications, and in-flight emergencies.

5. Block MIF

CTS REF	MANEUVER	IR4102
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	1+
11	Departure	4+
12	Enroute Navigation	4+
12	Point-to-Point Navigation	4+
18	Route/Destination Change	3
15	Holding	4
13	Descent/Field Entry	4+
12	STAR	4
17	Precision Approach	4+
18	Non-Precision Approach	4+
17 18 5	Partial Panel Approach	4+
21	Emergency Instrument Approach	4+
17	No-Gyro GCA	4+
20	Missed Approach	4+
20 5	Partial Panel Missed Approach	4+

Block #	Media	Title	Events	Hrs	H/X
IR42	T-45	NATOPS Instrument Rating Check Flight	1	1.6	1.6

1. Prerequisite. IR4102.

2. Syllabus Notes

a. Event will be flown from the rear cockpit with hood.

b. No more than 60 days shall elapse between completion of the IR1103 exam and successful completion of IR4290 or the exam shall be retaken.

c. Successful completion of this block will warrant issuance of a USN standard NATOPS instrument rating. If this NATOPS instrument rating will expire within 120 days of completion of the T-45 Combined Multi-Service Pilot Training System, the instrument rating process shall be updated prior to detaching.

d. It is highly recommended that AN/IR flights be conducted outside the local flying areas to the maximum extent possible.

e. Two out-and-in flights (outside the local area) are required in the AN/IR syllabus prior to IR4290. A cross-country with at least four legs may be substituted for this requirement.

f. Students shall contact their instructor prior to brief to determine the route of flight to plan.

g. Students shall bring a copy of a completed DD-175 and jet log to the brief for instructor use during the flight.

h. Students shall be prepared to discuss in detail any and all aspects of instrument flight in the brief. These include (but are not limited to) procedures; rules governing instrument flight from FARs, NATOPS, or the AIM; information contained in DOD FLIP publications; and emergency procedures.

i. During this block, students must fly at least the approaches listed below:

Precision approach	1 full panel
	1 partial panel
Non-precision approach	1

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, lost communications, in-flight emergencies, and general instrument procedures and knowledge.

5. Block MIF

CTS REF	MANEUVER	IR4290
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	1+
11	Departure	4+
12	Enroute Navigation	4+
12	Point-to-Point Navigation	4+
18	Route/Destination Change	3
15	Holding	4
13	Descent/Field Entry	4+
12	STAR	4
17	Precision Approach	4+
18	Non-Precision Approach	4+
17 18 5	Partial Panel Approach	4+
21	Emergency Instrument Approach	4+
17	No-Gyro GCA	4+
20	Missed Approach	4+
20 5	Partial Panel Missed Approach	4+

Block #	Media	Title	Events	Hrs	H/X
AN32	OFT	Advanced Airways Navigation	1	1.5	1.5

1. Prerequisite. Intermediate Jet.

2. Syllabus Notes

a. Handouts listing the route of flight to plan and study for each simulator event shall be obtained by students from book issue at the ground training building.

b. Students shall bring a copy of their DD-175 and single-engine jet log to all simulator events for instructor use.

c. The HUD will be available for use on all simulator and front seat AN stage flights.

d. This event shall be flown in night conditions.

e. Students shall fly the following approaches at a minimum:

Precision Approach	2
Non-precision Approach	1
Partial Panel Approach	1

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

CTS REF	MANEUVER	AN3201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/ Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	3+
2	In-Flight EPs	3+
2	Lost Communications	3+
1 8	Route/Destination Change	3+
13	Descent/Field Entry	3+
17	Precision Approach	3+
18	Non-precision Approach	3+
17 18 5	Partial Panel Approach	3+
20	Missed Approach	3+
19	Circling Approach-to-Land	3+
23	Landings	3+

Block #	Media	Title	Events	Hrs	H/X
AN43	T-45	Advanced Airways Navigation	1	1.4	1.4

1. Prerequisite. AN3201.

2. Syllabus Notes

a. Event will be flown from the front cockpit.

b. Should be flown at night. Take off no earlier than 30 minutes after official sunset.

c. During this block, students must fly at least one precision approach and one non-precision approach at a field without a Fresnel lens.

d. The HUD will be available for use on all simulator and front seat AN stage flights.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, night landing at a field without a Fresnel lens, transition from one-half to full flaps for full-stop landing, circle-to-land procedures, uncontrolled airport procedures, and Unicom voice procedures.

5. Block MIF

CTS REF	MANEUVER	AN4301
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
13	Descent/Field Entry	3+
17	Precision Approach	4+
18	Non-precision Approach	4+
20	Missed Approach	4+
17 18	Transition to Full-Flap-Off Inst Approach	3+
23	Night Landing at Field without a Lens	3+
23	Landings	3+

Block #	Media	Title	Events	Hrs	H/X
AN33	OFT	Advanced Airways Navigation	1	1.5	1.5

1. Prerequisites

a. AN4301.

b. ON1103.

2. Syllabus Notes

a. Handouts listing the route of flight to plan and study for each simulator event shall be obtained by students from book issue at the ground training building.

b. Students shall bring a copy of their DD-175 and single-engine jet log to all simulator events for instructor use.

c. The HUD will be available for use on all simulator and front seat AN stage flights.

d. Students must fly at least one partial panel approach.

e. Lost communications procedures will be conducted at some point during the flight.

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

CTS REF	MANEUVER	AN3301
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
2	Start Malfunctions	3+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
2	In-Flight EPs	3+
2	Lost Communications	3+
1 8	Route/Destination Change	3+
15	Holding	4
12	STAR	3+
13	Descent/Field Entry	4+
17	Precision Approach	4+
18	Non-precision Approach	4+
17 18 5	Partial Panel Approach	4+
23	Landings	3+

Block #	Media	Title	Events	Hrs	H/X
AN44	T-45	Advanced Airways Navigation	2	3.0	1.5

1. Prerequisite. AN3301.

2. Syllabus Notes

a. Events will be flown from the front cockpit.

b. Students shall contact their instructor prior to brief to determine the route of flight to plan.

c. Students shall bring a copy of a completed DD-175 and jet log to the brief for instructor use during the flight.

d. Should be flown outside local area, if able.

e. During this block, students must fly a minimum of four total approaches, to include the items listed below:

High Altitude Penetration	1
TACAN/VOR DME	1 full panel
ILS	1 full panel
PAR	1
Partial Panel Approach	1
Emergency Instrument Approach	1

3. Special Syllabus Requirements. None.

4. Discuss Items

AN4401-2
QOD and in-flight emergencies.

5. Block MIF

CTS REF	MANEUVER	AN4402
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
18	Route/Destination Change	3
15	Holding	4
13	Descent/Field Entry	4+
17	Precision Approach	4+
18	Non-precision Approach	4+
17 18 5	Partial Panel Approach	4+
21	Emergency Instrument Approach	4+
20	Missed Approach	4+
23	Landings	3+

Block #	Media	Title	Events	Hrs	H/X
AN45	T-45	Advanced Airways Navigation	1	1.5	1.5

1. Prerequisites

a. AN4402.

b. BFM1105.

2. Syllabus Notes

a. Event will be flown from front cockpit.

b. Students shall contact their instructor prior to brief to determine the route of flight to plan.

c. Students shall bring a copy of a completed DD-175 and jet log to the brief for instructor use during the flight.

d. During this block, students must fly a minimum of three total approaches, to include the items listed below:

Precision	1
Non-Precision	1
Low Oil Approach	1

3. Special Syllabus Requirements. None.

4. Discuss Items. Questions of the day, in-flight emergencies, and lost communications.

5. Block MIF

CTS REF	MANEUVER	AN4501
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
18	Route/Destination Change	3
15	Holding	4
16	High Altitude Penetration	4+
13	Descent/Field Entry	4+
17	Precision Approach	4+
18	Non-precision Approach	4+
20	Missed Approach	4+
23	Landings	3+

Block #	Media	Title	Events	Hrs	H/X
AN46	T-45	Advanced Airways Navigation Solo	2	2.4	1.2

1. Prerequisite. AN4501.

2. Syllabus Notes

a. AN46 block is a two-leg cross-country or out-and-in solo flight to build confidence in unfamiliar field operations. AN4601 and AN4602 shall be scheduled consecutively.

b. Students will brief with the Wing/Squadron Duty Officer (WDO/SDO) and will have a completed DD-175 and jet log for the route of flight as well as all pertinent weather and NOTAM information.

c. During this block, students must fly at least one precision approach and one non-precision approach. However, additional approaches are desired if able.

3. Special Syllabus Requirements. None.

4. Discuss Items

AN4601-2
QOD and in-flight emergencies.

5. Block MIF

CTS REF	MANEUVER	AN4602
1	General Knowledge/Procedures	1+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	1+
4	Basic Airwork	1+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	1+
7	Ground Operations	1+
8	Flight Admin	1+
10	Takeoff	1+
11	Departure	1+
12	Enroute Navigation	1+
13	Descent/Field Entry	1+
17	Precision Approach	1+
18	Non-precision Approach	1+
20	Missed Approach	1+
23	Landings	1+

Chapter VI

Navigation Training

This chapter does not apply to Intermediate Jet, Advanced Strike, or Intermediate E-2/C-2 students.

BLANK PAGE

Chapter VII

Formation Training

1. Matrices. The following matrices are an overview of the Formation category. The category includes Formation, Night Formation, and E-2/C-2 Formation (not shown on stage MIF) stages. The purpose of these matrices is to provide the SNA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Formation Stage MIF

Simulator/Device Event

FORMATION MANEUVER ITEM FILE										
CTS REF	**MANEUVER**	**FRM3103**	**FRM2101**	**FRM4106**	**FRM4201**	**FRM4301**	**FRM4404**	**FRM4501**	**DIV4104**	**DIV4201**
1	General Knowledge/ Procedures	3+	3+	4+	4+	3+	4+	4+	4+	4+
2	Emergency Procedures	3+	3+	3+	3+	3+	3+	3+	3+	4+
3	Headwork/ Situational Awareness	3+	3+	3+	3+	3+	3+	3+	3+	3+
4	Basic Airwork	3+	3+	4+	4+	3+	4+	4+	4+	4+
5	Mission Planning/ Briefing/ Debriefing	3+	3+	4+	4+	4+	4+	4+	4+	4+
6	Communications	3+	3+	3+	3+	3+	4+	4+	4+	4+
7	Ground Operations	3+	3+	4+	4+	4+	4+	4+	4+	4+
8	Flight Admin	2+	3+	3+	1+	3+	4+	1+	4+	4+
2	Start Malfunctions		3+							

MIF continued on next page.

FORMATION MANEUVER ITEM FILE										
CTS REF	**MANEUVER**	**FRM3103**	**FRM2101**	**FRM4106**	**FRM4201**	**FRM4301**	**FRM4404**	**FRM4501**	**DIV4104**	**DIV4201**
2	Ground Emergencies		3+							
2	Aborted Takeoff		3+							
2	Takeoff Emergencies		3+							
2	Engine EPs		3+							
2	Flight Control EPs		3+							
2	Electrical EPs		3+							
2	ECS EPs		3+							
2	Fuel System EPs		3+							
30 10	Individual/ Interval Takeoff	2+	3+	4+	4+	4+	4	4	4+	4+
30	Section Takeoff	2+					3+	3	4	4
11	Departure			4		4+	4	4		
13	Descent/Field Entry		3	4	4	4	4	4		
32	Division Rendezvous								3+	3+
32	Parade	2+	2+	3+	3+		4+	4+	3+	3+
32	Turns/Echelon	2+	2+	3+	3+		4+	4+	3+	3+
32	Crossunder/ Section Crossunder	2+		3+	3+		3+	3+	3+	4+
32	Lead Change			3+	3+	3+	4+	4+		
32	TACAN Rendezvous	2+		3+	3+		4+	4+	3	
32	Breakup and Rendezvous	2+		3+	3+		4+	4+	3+	3+
32	Underrun	2		3+	3		4+	4	4	4
32	Running Rendezvous	2+		3+	3+		3+	3		
32	Cruise	2+					3+	3+	3+	3+

MIF continued on next page.

FORMATION MANEUVER ITEM FILE										
CTS REF	**MANEUVER**	**FRM3103**	**FRM2101**	**FRM4106**	**FRM4201**	**FRM4301**	**FRM4404**	**FRM4501**	**DIV4104**	**DIV4201**
32	Column						1+			
32	Shuffle Division								3+	3+
31	Formation Lead					3+	3+		3	
33	Lead Section Approach/Missed Approach						3+		3	
33	Section Approach/Missed Approach as Wing	3+	3	3+	3		4+	4	4	4
33	Section Approach/Touch-and-Go/Rejoin as Wing						3+			
33	Touch-and-Go/ Rejoin						3+			
32	Section Break	2+		3+	3	3	4+	4+	4	4
32	Division Break								4+	4
21	Precautionary Approach	3+	3+	3+	1	3	3+	1	3+	1
22	VFR Landing Pattern	3+	3	3+	1+	3+	3+	1	4+	1
23	Landing/Touch-and-Go	2+	2	3+	1+	3+	3+	1+	4+	1
	Special Syllabus Requirements			1			1			

3. Night Formation Stage MIF

Simulator/Device Event

NIGHT FORMATION MANEUVER ITEM FILE					
CTS REF	**MANEUVER**	**NFR3101**	**NFR2101**	**NFR4102**	**NFR4201**
1	General Knowledge/Procedures	3+	3+	4+	4+
2	Emergency Procedures	3+	3+	3+	4+
3	Headwork/Situational Awareness	3+	3+	3+	4+
4	Basic Airwork	3+	3+	4+	4+
5	Mission Planning/Briefing/ Debriefing	4+	4+	4+	4+
6	Communications	3+	3+	4+	4+
7	Ground Operations	4+	4+	4+	4+
8	Flight Admin	3+	3+	4+	4+
2	Ground Emergencies	3+			
2	Takeoff Emergencies		3+		
2	Aborted Takeoff	3+	3+		
2	Electrical EPs		3+		
2	In-Flight Emergencies		3		
2	Landing Emergencies		3+		
2	Lost Communications		3+		
10	Takeoff	4+	4+	4+	4+
11	Departure	4+		4+	4+
32	Night TACAN Rendezvous	3+		3+	3+
32	Parade	2+		3+	3+
32	Crossunder	2+		3+	3+
32	Night Lead Change	2+		3+	3+
32	Night Breakup/CV Rendezvous	2+		3+	3+
32	Night Underrun	3		3	3
32	Night Running Rendezvous	2+		3+	3+

MIF continued on next page.

NIGHT FORMATION MANEUVER ITEM FILE					
CTS REF	**MANEUVER**	**NFR3101**	**NFR2101**	**NFR4102**	**NFR4201**
17 18	Instrument Approach		4		
33	Section Approach	2+		3+	3+
33	Section Missed Approach	2+		3+	3+
33	Touch-and-Go/Rejoin			3+	
13	Descent/Field Entry	3	3+	4	4+
32	Section Break	2+		3+	3+
2	Field Arrestment		4+		
29	Pattern Stall/Recovery		4+		
22	VFR Landing Pattern	3+		4+	1+
23	Landing/Touch-and-Go	2+	2+	3+	1+

Block #	Media	Title	Events	Hrs	Category
FRM11	MIL/CAI	Section Formation Flight Procedures	6	5.5	FRM1

1. Prerequisite. FAM1103.

2. Events

FRM1101	MIL	Formation Marshal, Takeoff, Rendezvous, Departure/ Climbout	1.0
FRM1102	MIL	Section Parade Formation	1.0
FRM1103	MIL	Section Formation Recovery, Approaches, Landing Configuration	0.7
FRM1104	MIL	Formation Section Cruise	0.8
FRM1105	MIL	Formation Emergencies	1.0
FRM1106	CAI Test	Formation Exam I	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
DIV11	MIL/CAI	Division Formation Flight Procedures	2	2.5	FRM2

1. Prerequisite. FRM1106.

2. Events

DIV1101	MIL	Division Parade Formation	1.5
DIV1102	CAI Test	Formation Exam II	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
NFR11	MIL/CAI	Night Formation Flight Procedures	2	2.2	NFR1

1. Prerequisite. Intermediate Jet.

2. Events

NFR1101	MIL	Night Formation Flight Procedures	1.2
NFR1102	CAI Test	Night Formation Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	H/X
FRM31	OFT	Formation Simulators	3	4.5	1.5

1. Prerequisites

a. FRM1106.

b. FAM4501.

2. Syllabus Notes

a. FRM3101 will introduce interval takeoff, parade, echelon (VFR parade turns away), crossunders, breakup and rendezvous, and section break.

b. FRM3102 will introduce interval takeoff abort, TACAN rendezvous, section approach, and section missed approach.

c. FRM3103 will introduce section takeoff, cruise position, and section touch-and-go/rejoin.

3. Special Syllabus Requirements. None.

4. Discuss Items

FRM3101
QOD, lost sight, and underrun.

FRM3102
QOD and section approach minima.

FRM3103
QOD and midair collision.

5. Block MIF

CTS REF	MANEUVER	FRM3103
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	2+
30 10	Individual/Interval Takeoff	2+
30	Section Takeoff	2+
32	Parade	2+
32	Turns/Echelon	2+
32	Crossunder	2+
32	TACAN Rendezvous	2+
32	Breakup and Rendezvous	2+
32	Underrun	2
32	Running Rendezvous	2+
32	Cruise	2+
33	Section Approach/Missed Approach as Wing	3+
32	Section Break	2+
21	Precautionary Approach	3+
22	VFR Landing Pattern	3+
23	Landing/Touch-and-Go	2+

Block #	Media	Title	Events	Hrs	H/X
FRM21	OFT	Formation Emergency Procedures	1	1.3	1.3

1. Prerequisite. FRM3103.

2. Syllabus Notes

a. FRM2101 must be flown after FRM3103.

b. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on this event: formation abort, ECS emergencies, structural failure/damage, NWS failure, anti-skid failure, pattern stall/recovery, and ejection.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and SAR situations.

5. Block MIF

CTS REF	MANEUVER	FRM2101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
2	Start Malfunctions	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
2	Takeoff Emergencies	3+
2	Engine EPs	3+
2	Flight Control EPs	3+
2	Electrical EPs	3+
2	ECS EPs	3+
2	Fuel System EPs	3+
30 10	Individual/Interval Takeoff	3+
13	Descent/Field Entry	3
32	Parade	2+
32	Turns/Echelon	2+
33	Section Approach/Missed Approach as Wing	3
21	Precautionary Approach	3+
22	VFR Landing Pattern	3
23	Landing/Touch-and-Go	2

Block #	Media	Title	Events	Hrs	H/X
FRM41	T-45	Basic Formation	6	9.0	1.5

1. Prerequisite. FRM3103.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Brief 2+00 prior to takeoff for FRM4101.

c. FRM4101 will be a demonstration flight flown with another FRM4101 with a student in the front cockpit of each aircraft.

d. On FRM4101, items demonstrated by the instructor and covered by Special Syllabus Requirements shall not be graded. All other items may be graded, if maneuver performed.

e. Students must fly at least 24 field-carrier landings within block.

f. Section approach and section missed approach shall not be flown by the student until FRM4104. The approach may be simulated at altitude.

g. Students shall fly the following maneuvers on every flight (except FRM4101):

VFR parade position and turns	
Box crossunders	
Breakup and rendezvous (250)	(6 desired)
Lead change	
Underrun	

h. Students must fly at a minimum the following maneuvers during the block:

Running rendezvous (may be done at altitude)	2
TACAN rendezvous	2
Section break	2
Section approach to missed approach	3
Precautionary approach	1
	(2 desired)

3. Special Syllabus Requirements

FRM4101
At a minimum, each instructor shall demonstrate the following maneuvers:

Marshal
Running rendezvous (may be done at altitude)
Parade position with turns
2 box crossunders
2 breakup and rendezvous as the wingman
Underrun
Lead change

4. Discuss Items

FRM4101-6
QOD.

5. Block MIF

CTS REF	MANEUVER	FRM4106
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
30	Individual/Interval Takeoff	4+
11	Departure	4
13	Descent/Field Entry	4
32	Parade	3+
32	Turns/Echelon	3+
32	Crossunder	3+
32	Lead Change	3+
32	TACAN Rendezvous	3+
32	Breakup and Rendezvous	3+
32	Underrun	3+
32	Running Rendezvous	3+
33	Section Approach/Missed Approach as Wing	3+
32	Section Break	3+
21	Precautionary Approach	3+
22	VFR Landing Pattern	3+
23	Landing/Touch-and-Go	3+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
FRM42	T-45	Basic Formation Solo	1	1.4	1.4

1. Prerequisites

    a. FRM4106.

    b. FRM2101.

2. Syllabus Notes

    a. All maneuvers except landings will be graded by the flight lead.

    b. Running rendezvous may be performed at altitude.

    c. Breakup and rendezvous – 6 desired.

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

CTS REF	MANEUVER	FRM4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	1+
30 10	Individual/Interval Takeoff	4+
13	Descent/Field Entry	4
32	Parade	3+
32	Turns/Echelon	3+
32	Crossunder	3+
32	Lead Change	3+
32	TACAN Rendezvous	3+
32	Breakup and Rendezvous	3+
32	Underrun	3
32	Running Rendezvous	3+
33	Section Approach/Missed Approach as Wing	3
32	Section Break	3
21	Precautionary Approach	1
22	VFR Landing Pattern	1+
23	Landing/Touch-and-Go	1+

Block #	Media	Title	Events	Hrs	H/X
FRM43	T-45	Basic Formation Lead	1	1.5	1.5

1. Prerequisite. FRM4201.

2. Syllabus Notes

a. The intent of this block is for students to gain exposure of flight lead responsibilities and to provide additional landing practice.

b. This event will be flown from the front cockpit. Students may lead any dual 2-plane formation flight.

c. Students may fly FRM4301 anytime after FRM4201.

d. The student shall brief conduct on FRM4301.

e. At minimum, students must fly four FCLP-type landings.

f. One precautionary approach is desired, but not required.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and flight lead responsibilities.

5. Block MIF

CTS REF	MANEUVER	FRM4301
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
30 10	Individual/Interval Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4
32	Lead Change	3+
31	Formation Lead	3+
32	Section Break	3
21	Precautionary Approach	3
22	VFR Landing Pattern	3+
23	Landing/Touch-and-Go	3+

Block #	Media	Title	Events	Hrs	H/X
FRM44	T-45	Cruise Formation	4	5.6	1.4

1. Prerequisite. FRM4201.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Initial join-up may be accomplished via section takeoff, interval takeoff, or TACAN rendezvous.

c. The following maneuvers will be performed on every flight:

Parade position with turns
V crossunders
Breakup and rendezvous – 2 x 250 and 2 x 300
Cruise position and maneuvering
Lead change

d. Students must fly the following maneuvers at a minimum during the block:

Section takeoff	2
Running rendezvous (may be done at altitude)	1
TACAN rendezvous	2
Underrun	2
Lead section approach/missed approach	1
Section approach/touch-and-go/rejoin (as Wing)	1
Section break (as Lead)	1
Precautionary approach	1 (2 desired)

e. Section takeoff must be performed on FRM4404 in order to perform a section takeoff on FRM4501 solo.

3. Special Syllabus Requirements

FRM4401
The IP will demo the column position.

4. Discuss Items

FRM4401-4
QOD.

5. Block MIF

CTS REF	MANEUVER	FRM4404
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
30 10	Individual/Interval Takeoff	4
30	Section Takeoff	3+
11	Departure	4
13	Descent/Field Entry	4
32	Parade	4+
32	Turns/Echelon	4+
32	Crossunder	3+
32	Lead Change	4+
32	TACAN Rendezvous	4+
32	Breakup and Rendezvous	4+
32	Underrun	4+
32	Running Rendezvous	3+
32	Cruise	3+
32	Column	1+
31	Formation Lead	3+
33	Lead Section Approach/Missed Approach	3+

MIF continued on next page.

CTS REF	MANEUVER	FRM4404
33	Section Approach/Missed Approach as Wing	4+
33	Section Approach/Touch-and-Go/ Rejoin as Wing	3+
33	Touch-and-Go/Rejoin	3+
32	Section Break	4+
21	Precautionary Approach	3+
22	VFR Landing Pattern	3+
23	Landing/Touch-and-Go	3+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
FRM45	T-45	Cruise Formation Solo	1	1.3	1.3

1. Prerequisite. FRM4404.

2. Syllabus Notes

a. This event will be flown from the front cockpit.

b. All maneuvers except landings will be graded by the flight lead.

c. Students must fly at least four breakup and rendezvous, 2 x 250 and 2 x 300.

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

CTS REF	MANEUVER	FRM4501
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	1+
30	Individual/Interval Takeoff	4
30	Section Takeoff	3
11	Departure	4
13	Descent/Field Entry	4
32	Parade	4+
32	Turns/Echelon	4+
32	Crossunder	3+
32	Lead Change	4+
32	TACAN Rendezvous	4+
32	Breakup and Rendezvous	4+
32	Underrun	4
32	Running Rendezvous	3
32	Cruise	3+
33	Section Approach/Missed Approach as Wing	4
32	Section Break	4+
21	Precautionary Approach	1
22	VFR Landing Pattern	1
23	Landing/Touch-and-Go	1+

Block #	Media	Title	Events	Hrs	H/X
DIV41	T-45	Division Formation	4	6.0	1.5

1. Prerequisites

a. DIV1102.

b. FRM4501.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Two flights in this block may be completed as three-plane flights. Either DIV4103 or DIV4104 must be flown as a four-plane.

c. Student must have one division takeoff running/CV rendezvous and one division break prior to DIV4104 (a three-plane rendezvous and break will meet this requirement).

d. The following maneuvers shall be flown on every flight:

Section crossunder
Balanced parade and turns
Breakup and rendezvous - 6 desired
Division cruise
Shuffle division
Landings

3. Special Syllabus Requirements. None.

4. Discuss Items

DIV4101-4
QOD.

5. Block MIF

CTS REF	MANEUVER	DIV4104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
30 10	Individual/Interval Takeoff	4+
30	Section Takeoff	4
32	Division Rendezvous	3+
32	Parade	3+
32	Turns/Echelon	3+
32	Section Crossunder	3+
32	TACAN Rendezvous	3
32	Breakup and Rendezvous	3+
32	Underrun	4
32	Cruise	3+
32	Shuffle Division	3+
31	Formation Lead	3
33	Lead Section Approach/Missed Approach	3
33	Section Approach/Missed Approach as Wing	4
32	Section Break	4
32	Division Break	4+
21	Precautionary Approach	3+
22	VFR Landing Pattern	4+
23	Landing/Touch-and-Go	4+

Block #	Media	Title	Events	Hrs	H/X
DIV42	T-45	Division Formation Solo	1	1.4	1.4

1. Prerequisites

a. DIV4104.

b. FRM4301.

2. Syllabus Notes

a. This event will be flown from the front cockpit.

b. All maneuvers except landings will be graded by the flight lead.

c. Students must fly six breakup and rendezvous, two per position in a four-plane or three per position in a three-plane.

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

CTS REF	MANEUVER	DIV4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
30 10	Individual/Interval Takeoff	4+
30	Section Takeoff	4
32	Division Rendezvous	3+
32	Parade	3+
32	Turns/Echelon	3+
32	Section Crossunder	4+
32	Breakup and Rendezvous	3+
32	Underrun	4
32	Cruise	3+
32	Shuffle Division	3+
31	Section Approach/Missed Approach as Wing	4
32	Section Break	4
32	Division Break	4
21	Precautionary Approach	1
22	VFR Landing Pattern	1
23	Landing/Touch-and-Go	1

Block #	Media	Title	Events	Hrs	H/X
NFR31	OFT	Night Formation	1	1.5	1.5

1. Prerequisite. NFR1102.

2. Syllabus Notes

   a. Use twilight mode of the simulator.

   b. Conduct "blind" cockpit switch check.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and NORDO light signals.

5. Block MIF

CTS REF	MANEUVER	NFR3101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
2	Ground Emergencies	3+
2	Aborted Takeoff	3+
10	Takeoff	4+
11	Departure	4+
32	Night TACAN Rendezvous	3+
32	Parade	2+
32	Crossunder	2+
32	Night Lead Change	2+
32	Night Breakup/CV Rendezvous	2+
32	Night Underrun	3
32	Night Running Rendezvous	2+
33	Section Approach	2+
33	Section Missed Approach	2+
13	Descent/Field Entry	3
32	Section Break	2+
22	VFR Landing Pattern	3+
23	Landing/Touch-and-Go	2+

Block #	Media	Title	Events	Hrs	H/X
NFR21	OFT	Night Formation Emergency Procedures	1	0.9	0.9

1. Prerequisite. NFR3101.

2. Syllabus Note. Use twilight mode of the simulator.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, NORDO light signals, night Bingo considerations, airfield lighting, and cockpit fogging.

5. Block MIF

CTS REF	MANEUVER	NFR2101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
2	Takeoff Emergencies	3+
2	Aborted Takeoff	3+
2	Electrical EPs	3+
2	In-Flight Emergencies	3
2	Landing Emergencies	3+
2	Lost Communications	3+
10	Takeoff	4+
17 18	Instrument Approach	4
13	Descent/Field Entry	3+

MIF continued on next page.

CTS REF	MANEUVER	NFR2101
2	Field Arrestment	4+
29	Pattern Stall/Recovery	4+
23	Landing/Touch-and-Go	2+

Block #	Media	Title	Events	Hrs	H/X
NFR41	T-45	Night Formation	2	3.0	1.5

1. Prerequisite. NFR2101.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Night flights shall take off no earlier than 30 minutes after official sunset.

c. One section approach to a touch-and-go/rejoin shall be flown in this block.

d. At least one section break must be flown in this block.

e. The following maneuvers will be flown on each flight:

TACAN rendezvous – 2
Breakup/CV rendezvous – 4 on NFR4101, 3 on NFR4102
Running rendezvous at altitude
Crossunders
Parade
Night lead change
Section approach (may be simulated at altitude)
Touch-and-go rejoin or section missed approach
Section break (wx permitting)
Field carrier landing(s)

3. Special Syllabus Requirements. None.

4. Discuss Items

NFR4101
QOD, landing pattern, formation safety, emergencies, and night lead.

NFR4102
QOD, NORDO lead change, and total electrical failure.

5. Block MIF

CTS REF	MANEUVER	NFR4102
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
32	Night TACAN Rendezvous	3+
32	Parade	3+
32	Crossunder	3+
32	Night Lead Change	3+
32	Night Breakup/CV Rendezvous	3+
32	Night Underrun	3
32	Night Running Rendezvous	3+
33	Section Approach	3+
33	Section Missed Approach	3+
33	Touch-and-Go/Rejoin	3+
13	Descent/Field Entry	4
32	Section Break	3+
22	VFR Landing Pattern	4+
23	Landing/Touch-and-Go	3+

Block #	Media	Title	Events	Hrs	H/X
NFR42	T-45	Night Formation Solo	1	1.3	1.3

1. Prerequisites

a. NFR4102.

b. A day or night front seat landing within the previous three days is a prerequisite for a night solo flight.

2. Syllabus Notes

a. This event will be flown from the front cockpit.

b. Night flights shall take off no earlier than 30 minutes after official sunset.

c. All maneuvers except landings shall be graded by the flight lead.

d. Running rendezvous will be done at altitude.

e. Section approach may be simulated at altitude.

f. Section break is desired weather permitting, but is not required.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and night Bingo procedures.

5. Block MIF

CTS REF	MANEUVER	NFR4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
32	Night TACAN Rendezvous	3+
32	Parade	3+
32	Crossunder	3+
32	Night Lead Change	3+
32	Night Breakup/CV Rendezvous	3+
32	Night Underrun	3
32	Night Running Rendezvous	3+
33	Section Approach	3+
33	Section Missed Approach	3+
13	Descent/Field Entry	4+
32	Section Break	3+
22	VFR Landing Pattern	1+
23	Landing/Touch-and-Go	1+

Block #	Media	Title	Events	Hrs	H/X
FRM46	T-45	E-2/C-2 Formation	1	1.5	1.5

1. Prerequisite. Intermediate Jet.

2. Syllabus Notes

   a. Event will be flown from the front cockpit.

   b. Student shall brief and lead this flight.

   c. The following maneuvers shall be performed:

      Breakup and rendezvous (2 x 250 desired)
      Parade position
      Lead change

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD.

5. Block MIF

CTS REF	MANEUVER	FRM4601
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	3+
10	Takeoff	4
30	Formation Takeoff	3+
11	Departure	4+
31	Formation Lead	3+
32	Parade	4+
32	Breakup and Rendezvous	4+
32	Lead Change	4+
13	Descent/Field Entry	4+
21	Precautionary Approach	3
17 18	Instrument Approach	4+
22	VFR Landing Pattern	4+
23	Field Carrier Landings	3+
23	Crosswind Landings	3
24	Waveoff	4
23	Full-Stop Landing	4+

Chapter VIII

Tactical Training

1. Matrices. The following matrices are an overview of the Tactical category. The category includes Tactical Formation, Operational Navigation, Strike, Advanced Tactical Formation, BFM, SEM, and Carrier Qualification Landing stages. The purpose of these matrices is to provide the SNA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Strike Stage. A Strike "E" may be awarded when the Circular Error Probability (CEP) is 75 feet or less with at least four bombs dropped.

2. Tactical Formation Stage MIF

TACTICAL FORMATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**TAC4103**	**TAC4201**
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	4	4
3	Headwork/Situational Awareness	4+	4+
4	Basic Airwork	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+
6	Communications	4+	4+
7	Ground Operations	4+	4+
8	Flight Admin	4+	4+
9	Tactical Admin	3+	3+
30 10	Takeoff	4+	4+
11	Rendezvous	4+	4+
31	Formation Lead	3+	
32	Formation Wing	4+	4+
35	Defensive Combat Spread	3+	3+
35	Cruise Turns	3+	3
35	Check Turns	3+	3+
35	Shackles	3+	3+
35	Off-Heading Shackles	3+	3
35	Tac Turns	3+	3+
35	In-Place Turns	3+	3+
35	Cross Turns	3+	3
37	Tail Chase Exercise	3+	3
36	Tactical Rejoin	3+	3
13	Descent/Field Entry	3+	
23	Landing(s)	3+	1+

3. Operational Navigation Stage MIF

Simulator

OPERATIONAL NAVIGATION MANEUVER ITEM FILE						
CTS REF	**MANEUVER**	**ON3103**	**ON4105**	**ON4203**	**ON4301**	**ON4402**
1	General Knowledge/Procedures	4+	4+	4+	4+	4+
2	Emergency Procedures	3+	3+	3	3	3
3	Headwork/Situational Awareness	3+	3+	4+	4+	3+
4	Basic Airwork	4+	4+	4+	4+	4+
5	Mission Planning/Briefing/ Debriefing	4+	4+	4+	4+	4+
6	Communications	3+	3+	4+	4+	4+
7	Ground Operations	4+	4+	4+	4+	4+
8	Flight Admin	3+	4+	4+	4+	4+
9	Tactical Admin			4+	4+	4+
30 10	Takeoff	4+	4+	4+	4+	4+
11	Departure	4+	4+	4+	4+	4+
31	Formation Lead			3+	3+	3+
32	Formation Wing			4+	4+	4+
12	Enroute Navigation	4+	4+	4+	4+	4+
40	Low-Level Navigation/ Procedures			4+	4+	4+
40	Route Entry	3+	4+	4+	4+	4+
40	Dead Reckoning	3+	3+			
40	Low-Level Waypoint Navigation	3+	4+			
40	Altitude Control	3+	4+			
40	Time Control	3+	4+			
40	Course Control	3+	4+			
40	In-flight Computation	3+	4+			
40	Chart Interpretation	3+	4+	4+	4+	4+

MIF continued on next page.

OPERATIONAL NAVIGATION MANEUVER ITEM FILE						
CTS REF	**MANEUVER**	**ON3103**	**ON4105**	**ON4203**	**ON4301**	**ON4402**
40	Turns	3+	4+	4+	4+	4+
40	Ridge Crossing	1	3			3
40	Weather Response	3+	3+	3+	3+	3+
40	Route Abort/Exit	3+	4+	4+	4+	4+
34	Tactical Lead			4+	4+	3+
35	Tactical Wing			4+	4+	4+
46	Sight/Lookout Doctrine			4+	4+	4+
6	Target Description			4+	4+	
49	Strike Maneuvering		1	4+	4+	4+
36	Tactical Rejoin			4+	4+	4+
2	HUD Failure	1+				
2	Bingo	3+	3+			
13	Descent/Field Entry	3+	4+	4+	4+	4+
21	Minimum/Emergency Fuel Approach	3+				
21	Precautionary Approach(es)					4
23	FF Roll-and-Go	3+	4+	4+		4+
23	Landing(s)	3+	4+	4+	1+	4+
	Special Syllabus Requirements	1		1		

4. Strike Stage MIF

Simulator

STRIKE STAGE MANEUVER ITEM FILE								
CTS REF	**MANEUVER**	**STK3106**	**STK2101**	**STK4104**	**STK4202**	**STK4301**	**STK4401**	**STK4501**
1	General Knowledge/ Procedures	4+	4+	4+	4+	4+	4+	4+
2	Emergency Procedures	4+	4+	4	4	4	4	4
3	Headwork/Situational Awareness	3+	3+	3+	3+	3+	3+	3+
4	Basic Airwork	4+	4+	4+	4+	4+	4+	4+
5	Mission Planning/ Briefing/Debriefing	4+	4+	4+	4+	4+	4+	4+
6	Communications	4+	4+	4+	4+	4+	4+	4+
7	Ground Operations	4+	4+	4+	4+	4+	4+	4+
8	Flight Admin	3+	3+	4+	4+	4+	4+	4+
9	Tactical Admin	3+	3+	4+	4+	4+	4+	4+
2	Ground Emergencies		3					
2	Aborted Takeoff		3					
2	Takeoff EPs		3					
2	Engine EPs		3					
2	Flight Control EPs		3					
2	Gear EPs		3					
2	Electrical EPs		3					
2	Hydraulic EPs		3					
2	Ejection		3+					
2	Lost Communications		3+					
2	Abort Run	4+	4+					
2	HUD failure	3+	3+					
2	Pitot Static Malfunction		3+					

MIF continued on next page.

STRIKE STAGE MANEUVER ITEM FILE								
CTS REF	**MANEUVER**	**STK3106**	**STK2101**	**STK4104**	**STK4202**	**STK4301**	**STK4401**	**STK4501**
2	Simo Run		3+					
2	Emergency Jettison		3+					
50	Hung Ordnance Approach		3+	4+				
2	Blown Tire during Takeoff/Landing		3+					
3010	Takeoff	4+	4+	4+	4+	4+	4+	4+
11	Rendezvous			4+	4+	4+	4+	4+
32	Formation Wing			4+	4+	4+	4+	4+
49	Mach Run	3+	3+	4+	4+	4+	4+	4+
49	30-Degree Pattern/ Bombs	3+	3+	4+	4+	4+	4	
49	20-Degree Pattern/ Bombs	3+		3	3	3	3	
49	10-Degree Pattern/ Bombs	3+		3	4	4+	4	
49	10-Degree Strafe/ Recovery	3+				3+		
49	30-Degree Rockets	3+						
49	30-30 Pop	3+						3+
49	Roll-In	3+	3+	4+		4+		4+
49	Tracking/Dive Angle	3+	3+	4+		4+		4
49	CCIP Target Tracking	3+				3+	4	4
49	Error Corrections	3+		4+	4+	4+	4+	4+
49	Release/Firing Parameters	3+		3+	3+	4+	4+	4+
49	Dive Recovery	3+	3+	4+	4+	4+	4+	4+
49	Accuracy			3+	3+	3	3	3
50	Off-Target Rendezvous	3+		4+	4+	4+	4+	4+
29	Pattern Stall/Recovery		4+					
21	Precautionary Approach			4				
23	Landings		3+	3+	1	4+	1	4+

5. Advanced Tactical Formation Stage MIF

Simulator/Device Event

ADVANCED TACTICAL FORMATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**TAC4304**	**TAC4401**
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	4	4
3	Headwork/Situational Awareness	4+	4+
4	Basic Airwork	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+
6	Communications	4+	4+
7	Ground Operations	4+	4+
8	Flight Admin	4+	4+
9	Tactical Admin	4+	4+
30 10	Takeoff	4+	4+
11	Rendezvous	4+	4+
31	Formation Lead	3+	3
32	Formation Wing	4+	4+
35	Defensive Combat Spread	4+	4+
35	Offensive Combat Spread	3+	3+
35	Check Turns	4+	4
35	Shackles	4+	4+
35	Off-Heading Shackles	4+	4+
35	Tac Turns	4+	4+
35	In-Place Turns	4+	4+
35	Cross Turns	4+	4
35	Advanced Tacform Maneuvering	3+	3+
35	Forced Cockpit Loading	3	
38	Loose Deuce Exercise	3+	

MIF continued on next page.

ADVANCED TACTICAL FORMATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**TAC4304**	**TAC4401**
39	Gunsight Tracking Exercise	3+	3
36	Tactical Rejoin	4+	4+
13	Descent/Field Entry	3+	3+
23	Landing(s)	4+	1+

6. Basic Fighter Maneuvering Stage MIF

Simulator/Device Event

BASIC FIGHTER MANEUVERING STAGE MANEUVER ITEM FILE										
CTS REF	**MANEUVER**	**BFM3101**	**BFM4101**	**BFM4201**	**BFM4303**	**BFM4401**	**BFM4502**	**BFM4602**	**BFM4701**	**BFM4801**
1	General Knowledge/ Procedures	4+	4+	4+	4+	4+	4+	4+	4+	4+
2	Emergency Procedures	4+	4+	4	4	4	4	4	4	4
3	Headwork/ Situational Awareness	3+	3+	3+	3+	3+	3+	3+	4+	4+
4	Basic Airwork	4+	4+	4+	4+	4+	4+	4+	4+	4+
5	Mission Planning/ Briefing/ Debriefing	4+	4+	4+	4+	4+	4+	4+	4+	4+
6	Communications	4+	4+	4+	4+	4+	4+	4+	4+	4+
7	Ground Operations	4+	4+	4+	4+	4+	4+	4+	4+	4+
41	Training Rules				3+	3+	3+	3+	4+	4+
8	Flight Admin	4+	4+	4+	4+	4+	4+	4+	4+	4+
9	Tactical Admin			4+	4+	4+	4+	4+	4+	4+

MIF continued on next page.

BASIC FIGHTER MANEUVERING STAGE MANEUVER ITEM FILE										
CTS REF	**MANEUVER**	**BFM3101**	**BFM4101**	**BFM4201**	**BFM4303**	**BFM4401**	**BFM4502**	**BFM4602**	**BFM4701**	**BFM4801**
30 10	Takeoff	4+	4+	4+	4+	4+	4+	4+	4+	4+
11	Rendezvous			4+	4+	4+	4+	4+	4+	4+
31	Formation Lead			3	3	3	3	3	3	3
32	Formation Wing			4+	4+	4+	4+	4+	4+	4+
35	Tactical Wing			3+	4+	4+	4+	4+	4+	4+
35	Defensive Combat Spread			3+						
35	Shackles			3+						
35	Off-Heading Shackles			3						
35	Tac Turns			3+						
35	In-Place Turns			3+						
35	Cross Turns			3						
35	Advanced Tacform Maneuvering			3+						
41	Snap-Shot Drill				3+	3+	3+	3+	4+	4+
41	Horizontal Scissors				3+	3+	3+	3+		
41	Rolling Scissors				3+	3+	3+	3+		
41	6,000-foot Perch Set				3+	3+	3+	3+		
41	9,000-foot Perch Set				3+	3+	3+	3+		
42	LAR Recognition				3+	3+				
43	WEZ Recognition						3+	3+		
42 43	Deck Awareness				3+	3+	3+	3+		
43	Separation (Bugout)						3+	3+		

MIF continued on next page.

BASIC FIGHTER MANEUVERING STAGE MANEUVER ITEM FILE										
CTS REF	**MANEUVER**	**BFM3101**	**BFM4101**	**BFM4201**	**BFM4303**	**BFM4401**	**BFM4502**	**BFM4602**	**BFM4701**	**BFM4801**
44	Butterfly Set								3+	3+
44	Abeam Set								3+	3+
44	BVR Set								3+	3+
42	Offensive BFM								4+	4+
43	Defensive BFM								4+	4+
9	Knock-It-Off				4+	4+	4+	4+	4+	4+
36	Tactical Rejoin			4+	4+	4+	4+	4+	4+	4+
46	Sight/Lookout Doctrine				3+	3+	3+	3+	3+	3+
41	Miscellaneous 1 V 0 Maneuvers		1+							
29	High AOA/ Deep Stall Investigation/ Rudder-Induced Departure	3+	3+							
29	70-Degree Nose-High Departure	3+	3+							
29	110-Degree Nose-High Departure	3+	3+							
29	90-Degree Nose-High Departure	3+								
29	Adverse Yaw Departure	3+	3+							
2	Stuck Throttle Approach	3+								
2	Blown Tire During Field Landing	4+								
2	Field Arrestment with Blown Tire	4+								

MIF continued on next page.

BASIC FIGHTER MANEUVERING STAGE MANEUVER ITEM FILE										
CTS REF	**MANEUVER**	**BFM3101**	**BFM4101**	**BFM4201**	**BFM4303**	**BFM4401**	**BFM4502**	**BFM4602**	**BFM4701**	**BFM4801**
2	Airstart	4+								
13	Descent/Field Entry		4+							
21	Precautionary Approach	4+	4		4+		4+		4	
23	Landing(s)	4+	4+	4+	4+	1+	4+	1+	4+	1+

7. Section Engaged Maneuvering Stage MIF

SECTION ENGAGED MANEUVERING STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**SEM4103**	**SEM4201**
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	4	4
3	Headwork/Situational Awareness	4+	4+
4	Basic Airwork	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+
6	Communications	4+	4+
7	Ground Operations	4+	4+
8	Flight Admin	4+	4+
9	Tactical Admin	4+	4+
30 10	Takeoff	4+	4+
31	Formation Lead	3	3
32	Formation Wing	4+	4+
35	Tactical Wing	4+	4+
45	Engaged Communications	3+	3+

MIF continued on next page.

SECTION ENGAGED MANEUVERING STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**SEM4103**	**SEM4201**
45	Training Rules	4+	4+
45	Mutual Support	3+	3+
45	Abeam Set	3+	3
42	Offensive BFM	4+	4
43	Defensive BFM	4+	4
45	No Switch	3+	3
45	Multi-Switch	3+	3
45	BVR/Tap-the-Cap	3+	3
9	Knock-It-Off	4+	4+
36	Tactical Rejoin	4+	4+
46	Sight/Lookout Doctrine	3+	3+
21	Precautionary Approach	4+	
23	Landing(s)	4+	1+

8. Carrier Qualification Landing Stage MIF

Simulator/Device Event
Check Flight Event

CARRIER QUALIFICATION LANDING STAGE MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**CQL4101**	**CQL4211**	**CQL3102**	**CQL2101**	**CQL4390**	**CQL4490**
1	General Knowledge/ Procedures	4+	1+	4+	4+	4+	4+
2	Emergency Procedures	4	1+	4+	4+	4	4
3	Headwork/Situational Awareness	4+	1+	4+	4+	4+	4+

MIF continued on next page.

CARRIER QUALIFICATION LANDING STAGE MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**CQL4101**	**CQL4211**	**CQL3102**	**CQL2101**	**CQL4390**	**CQL4490**
4	Basic Airwork	4+	1+	4+	4+	4+	4+
5	Mission Planning/ Briefing/Debriefing	4+	1+	4+	4+	4+	4+
6	Communications	4+	1+	4+	4+	4+	4+
7	Ground Operations	4+	1+	4+	4+	4+	4+
8	Flight Admin	4+	1+	4+	4+	4+	4+
2	Ground Emergencies			3	4+		
2	CV Emergencies			3+	4+		
2	Suspend Procedures				4+		
2	Brake Failure on Deck				4+		
2	Lost Communications at CVN				4+		
2	NWS Failure				4+		
2	Launch Bar Malfunction				4+		
2	Catapult Malfunctions				4+		
2	GINA Failure				4+		
2	Swerve on Touchdown				4+		
2	Ejection				4+		
2	CV Arrestment w/Blown Tire(s)			2+	4+		
2	Bolter w/Blown Tire(s)			3+	4+		
2	Field Arrestment w/Blown Tire(s)			3+	4+		
2	Bingo			4+	4+		
30 10	Takeoff	4+	1+	4+	4+	4+	4+
11	Departure	4+	1+	4+	4+	4+	4+
13	Descent/Field Entry	4+	1+	4+	4+	4+	4+
52	FCLP Pattern	4+	1+			4+	

MIF continued on next page.

CARRIER QUALIFICATION LANDING STAGE MANEUVER ITEM FILE							
CTS REF	**MANEUVER**	**CQL4101**	**CQL4211**	**CQL3102**	**CQL2101**	**CQL4390**	**CQL4490**
51	CV Arrival (Case I/II)			3+	4+		4+
52	CV Pattern			3+	4+		4+
52	Start Position		1+	3+	3+	4+	4+
52	AOA Control		1+	2+	2+	4+	4+
52	Glideslope Control		1+	2+	2+	4+	4+
52	Power Control		1+	2+	2+	4+	4+
52	Lineup Control		1+	2+	2+	4+	4+
52	Error Detection/ Correction		1+	2+	2+	4+	4+
52	Response to LSO Calls		1+	4+	4+	4+	4+
52	Bolter/Touch-and-Go Technique		1+	4+	4+	4+	4+
52	Waveoff Technique		1+	4+	4+	4+	4
51	CVN Flight Deck Procedures			3+	4+		4+
51	Catapult Launch Procedures			3+	4+		4+
51	CVN Arrestment Procedures			3+	4+		4+
17	ILS to Visual Approach and Landing	3					
23	FF Roll-and-Go	4+					
23	FF Touch-and-Go	4+					
23	Full-Stop Landing	4+	1+			4+	1+
	Special Syllabus Requirements			1			

Block #	Media	Title	Events	Hrs	Category
TAC11	MIL/CAI	Tactical Formation Flight Procedures	2	2.0	TAC1

1. Prerequisite. DIV1102.

2. Events

TAC1101	MIL	Introduction to Tactical Formation Procedures	1.5
TAC1102	CAI Test	Tactical Formation Exam	0.5

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
ON11	MIL/CAI	Operational Navigation Flight Procedures	3	3.7	ONAV1

1. Prerequisite. ON0105.

2. Events

ON1101	CAI	Low-Level Waypoint Navigation	0.7
ON1102	MIL	ONAV Flight Procedures	2.0
ON1103	CAI Test	ONFP Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
ON12	MIL/CAI	Two-Plane ON Flight Procedures	2	2.9	ONAV2

1. Prerequisites

   a. ON1103.

   b. STK1105.

   c. TAC1202.

2. Events

ON1201	MIL	Two-Plane ONAV Road Recce/SLL	2.5
ON1202	CAI Test	Two-Plane ONAV Exam	0.4

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
STK11	MIL/CAI	Weapons Flight Procedures	5	4.7	STK1

1. Prerequisite. Intermediate Jet (ASI0110).

2. Events

STK1101	CAI	Weapons Data Entry	0.7
STK1102	MIL	Weapons Delivery I	0.8
STK1103	MIL	Weapons Delivery II	0.7
STK1104	MIL	Weapons Delivery III	1.5
STK1105	CAI Test	Weapons Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
TAC12	MIL/CAI	Advanced Tactical Formation Flight Procedures	2	2.0	TAC2

1. Prerequisite. Intermediate Jet (ASI0110).

2. Events

TAC1201	MIL	Advanced Tactical Formation	1.0
TAC1202	CAI Test	Advanced Tactical Formation Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
BFM11	MIL/CAI	1 V 1 Basic Fighter Maneuvers Flight Procedures	5	4.6	BFM1

1. Prerequisites

   a. TAC1202 (Advanced Tactical Formation Exam).

   b. ON1103 (ONFP Exam).

   c. STK1105 (Weapons Exam).

2. Events

BFM1101	MIL	Introduction to BFM	0.8
BFM1102	MIL	BFM 1 V 1 Offensive Maneuvering	1.0
BFM1103	MIL	BFM 1 V 1 Defensive Maneuvering	1.0
BFM1104	MIL	BFM 1 V 1 Neutral Starts	0.8
BFM1105	CAI Test	BFM 1 V 1 Exam	1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
SEM11	MIL/CAI	2 V 1 Section Engaged Maneuvers Flight Procedures	2	3.7	BFM2

1. Prerequisite. BFM4502.

2. Events

SEM1101	MIL	SEM 2 V 1 Flight Procedures	2.7
SEM1102	CAI Test	SEM 2 V 1 Exam	1.0

3. Syllabus Note. SEM1102 must be complete prior to SEM4101.

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	Category
CQL11	MIL/CAI	Carrier Qualification Landing Flight Procedures	4	6.0	CQL1

1. Prerequisite. Intermediate Jet (ASI0110).

2. Events

CQL1101	MIL	Day/Night FCLP Refresher	1.0
CQL1102	MIL	CQL Shipboard Procedures	1.0
CQL1103	MIL	Ship's Brief	3.0
CQL1104	CAI Test	Ship's Brief Exam	1.0

3. Syllabus Note. Students must have a total of 270 FCLP-type landings in the T-45 prior to beginning Carrier Qualification Landing Stage (CQL4201).

4. Discuss Items. None.

Block #	Media	Title	Events	Hrs	H/X
TAC41	T-45	Tactical Formation	3	3.6	1.2

1. Prerequisites

    a. DIV4201.

    b. TAC1102 (Tactical Formation Exam).

2. Syllabus Notes

    a. These events will be flown from the front cockpit.

    b. Brief 2+00 prior to takeoff for TAC4101.

    c. Off-heading shackles will not be performed on TAC4101. They may be introduced on TAC4102.

    d. Student will lead at least one event back to the field.

3. Special Syllabus Requirements. None.

4. Discuss Items

    TAC4101
    QOD, lost sight game plan, VCR management, G-warm maneuver, and 500-ft safety bubble.

    TAC4102-3
    QOD, lost sight game plan, and VCR management.

5. Block MIF

CTS REF	MANEUVER	TAC4103
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	3+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3+
32	Formation Wing	4+
35	Defensive Combat Spread	3+
35	Cruise Turns	3+
35	Check Turns	3+
35	Shackles	3+
35	Off-Heading Shackles	3+
35	Tac Turns	3+
35	In Place Turns	3+
35	Cross Turns	3+
37	Tail-Chase Exercise	3+
36	Tactical Rejoin	3+
13	Descent/Field Entry	3+
23	Landing(s)	3+

Block #	Media	Title	Events	Hrs	H/X
TAC42	T-45	Tactical Formation Solo	1	1.3	1.3

1. Prerequisite. TAC4103.

2. Syllabus Note. This event will be flown from the front cockpit.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, lost sight game plan, VCR management, G-warm maneuver, 500-ft safety bubble.

5. Block MIF

CTS REF	MANEUVER	TAC4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	3+
30 10	Takeoff	4+
11	Rendezvous	4+
32	Formation Wing	4+
35	Defensive Combat Spread	3+
35	Cruise Turns	3
35	Check Turns	3+
35	Shackles	3+
35	Off-Heading Shackles	3
35	Tac Turns	3+
35	In-Place Turns	3+
35	Cross Turns	3
37	Tail-Chase Exercise	3
36	Tactical Rejoin	3
23	Landing(s)	1+

Block #	Media	Title	Events	Hrs	H/X
ON31	OFT	Operational Navigation	3	3.9	1.3

1. Prerequisite. ON1103 (ONFP Exam).

2. Syllabus Notes

a. SNA is required to complete four original JMPS-generated ONAV charts, simulator and aircraft combined, during single plane ONAVs. The SNA is authorized to copy the original chart for the IP on those flights.

b. Students must have a minimum 24 hour notice prior to each previously unplanned ONAV event for preflight planning.

c. All ONAV routes should be flown at 360 knots.

d. ON3102. Introduce response to weather on route and execute Bingo profile.

e. ON3103. Introduce low-level waypoint navigation.

3. Special Syllabus Requirements

ON3101
Demonstrate declutter mode.

4. Discuss Items

ON3101
QOD and low altitude hazards.

ON3102
QOD, MFD failure, and low altitude hazards.

ON3103
QOD.

5. Block MIF

CTS REF	MANEUVER	ON3103
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
40	Route Entry	3+
40	Dead Reckoning	3+
40	Low-Level Waypoint Navigation	3+
40	Altitude Control	3+
40	Time Control	3+
40	Course Control	3+
40	In-flight Computation	3+
40	Chart Interpretation	3+
40	Turns	3+
40	Ridge Crossing	1
40	Weather Response	3+
40	Route Abort/Exit	3+
2	HUD Failure	1+
2	Bingo	3+
13	Descent/Field Entry	3+
21	Minimum/Emergency Fuel Approach	3+
23	FF Roll-and-Go	3+
23	Landing(s)	3+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
ON41	T-45	Operational Navigation	5	6.5	1.3

1. Prerequisite. ON3103.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Brief 2+00 prior to takeoff for ON4101.

c. SNA is required to complete four original JMPS-generated ONAV charts, simulator and aircraft combined, during single plane ONAVs. The SNA is authorized to copy the original chart for the IP on those flights.

d. Students must have a minimum 24 hour notice prior to each previously unplanned ONAV event for preflight planning.

e. All ONAV routes should be flown at 360 knots.

f. Students must fly four different routes in this block of training. Students may not fly the same route twice using the same method of navigation (dead reckoning/waypoint navigation).

g. All ONAV routes may be flown as legs of a cross-country.

h. ON4101 and ON4102 are DR navigation flights. ON4103 – ON4105 are system navigation flights. This does not eliminate the requirement for chart preparation.

3. Special Syllabus Requirements. None.

4. Discuss Items

ON4101
QOD, emergency Bingo, maximum range profile, inadvertent low altitude IMC, and low altitude emergencies.

ON4102
QOD, low altitude flight safety, sun angles, and shadows.

ON4103
QOD, low altitude flight safety, ridgeline crossing, and waypoint data entry.

ON4104
QOD, low altitude flight safety, mission task management, and autosequential steering.

ON4105
Question of the day, low altitude flight safety, tactical implications of timing, and go/no-go criteria.

5. Block MIF

CTS REF	MANEUVER	ON4105
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
12	Enroute Navigation	4+
40	Route Entry	4+
40	Dead Reckoning	3+
40	Low-Level Waypoint Navigation	4+
40	Altitude Control	4+
40	Time Control	4+
40	Course Control	4+
40	In-flight Computation	4+
40	Chart Interpretation	4+
40	Turns	4+
40	Ridge Crossing	3
40	Weather Response	3+
40	Route Abort/Exit	4+
49	Strike Maneuvering	1
2	Bingo	3+
13	Descent/Field Entry	4+
23	FF Roll-and-Go	4+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
ON42	T-45	Operational Navigation (Section Road Recce)	3	3.6	1.2

1. Prerequisites

   a. ON1202 (Two-Plane ONAV Exam).

   b. ON4105.

   c. TAC4401.

   d. STK4104.

2. Syllabus Notes

   a. These events will be flown from the front cockpit.

   b. Brief 2+00 prior to takeoff for ON4201.

   c. Jacket review required prior to check flights.

3. Special Syllabus Requirements

   ON4201
   IP demonstrate section target attack.

4. Discuss Items

   ON4201
   QOD, low altitude hazards, low altitude emergencies, low altitude section maneuvering, low altitude section deconfliction, low altitude flight safety, NORDO procedures, and display management.

   ON4202
   QOD, slow speed and low altitude roll-ins, two-plane armed reconnaissance, attacks on approved targets of opportunity with simulated ordnance, and target area deconfliction.

   ON4203
   QOD, visual reconnaissance, lookout doctrine, and response to bandit.

5. Block MIF

CTS REF	MANEUVER	ON4203
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Departure	4+
31	Formation Lead	3+
32	Formation Wing	4+
12	Enroute Navigation	4+
40	Low-Level Navigation/Procedures	4+
40	Route Entry	4+
40	Chart Interpretation	4+
40	Turns	4+
40	Weather Response	3+
40	Route Abort/Exit	4+
34	Tactical Lead	4+
35	Tactical Wing	4+
46	Sight/Lookout Doctrine	4+
6	Target Description	4+
49	Strike Maneuvering	4+
36	Tactical Rejoin	4+
13	Descent/Field Entry	4+
23	FF Roll-and-Go	4+
23	Landing(s)	4+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
ON43	T-45	Operational Navigation (Section Road Recce Solo)	1	1.2	1.2

1. Prerequisite. ON4203.

2. Syllabus Notes. None.

3. Special Syllabus Requirement. None.

4. Discuss Items. QOD, look-out doctrine, and response to bandit.

5. Block MIF

CTS REF	MANEUVER	ON4301
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Departure	4+
31	Formation Lead	3+
32	Formation Wing	4+
12	Enroute Navigation	4+
40	Low-Level Navigation/Procedures	4+
40	Route Entry	4+
40	Chart Interpretation	4+
40	Turns	4+
40	Weather Response	3+
40	Route Abort/Exit	4+
34	Tactical Lead	4+
35	Tactical Wing	4+
46	Sight/Lookout Doctrine	4+
6	Target Description	4+
49	Strike Maneuvering	4+
36	Tactical Rejoin	4+
13	Descent/Field Entry	4+
23	Landing(s)	1+

Block #	Media	Title	Events	Hrs	H/X
ON44	T-45	Operational Navigation (Section Low Level)	2	2.4	1.2

1. Prerequisites

a. ON1202 (Two-Plane ONAV Exam).

b. ON4105.

c. TAC4401.

d. STK4401.

e. STK4501.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Weather must be at or above 5,000/5 to perform pop-up attacks on ON4401 and ON4402. Otherwise, level laydown tactics shall be conducted.

3. Special Syllabus Requirement. None.

4. Discuss Items

ON4401-02
QOD, wingman deconfliction responsibilities, and target area deconfliction.

5. Block MIF

CTS REF	MANEUVER	ON4402
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+

MIF continued on next page.

CTS REF	MANEUVER	ON4402
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Departure	4+
31	Formation Lead	3+
32	Formation Wing	4+
12	Enroute Navigation	4+
40	Low-Level Navigation/Procedures	4+
40	Route Entry	4+
40	Chart Interpretation	4+
40	Turns	4+
40	Ridge Crossing	3
40	Weather Response	3+
40	Route Abort/Exit	4+
34	Tactical Lead	3+
35	Tactical Wing	4+
46	Sight/Lookout Doctrine	4+
49	Strike Maneuvering	4+
36	Tactical Rejoin	4+
13	Descent/Field Entry	4+
21	Precautionary Approach(es)	4
23	FF Roll-and-Go	4+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
STK31	OFT	Strike	6	6.6	1.1

1. Prerequisite. STK1105.

2. Syllabus Notes

a. STK3101 shall be entirely flown in the 30-degree pattern. Student is required to practice aborting a bombing run and dealing with HUD failure.

b. STK3102 shall introduce the 20-degree pattern and then concentrate on 30-degree pattern.

c. STK3103 shall introduce the 10-degree pattern and then concentrate on 30-degree pattern.

d. STK3104 shall introduce the 30-degree rocket pattern, strafe, strafe recovery, and CCIP.

e. STK3105 shall introduce the pop pattern and comm procedures.

f. STK3106 shall practice all three bombing patterns, pop pattern and strafe. CCIP target tracking will also be practiced.

3. Special Syllabus Requirements. None.

4. Discuss Items

STK3101-6
QOD.

STK3104
QOD and compute offset aimpoint.

STK3106
QOD, compute CEP, weapons emergencies, and emergency jettison.

5. Block MIF

CTS REF	MANEUVER	STK3106
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	3+
9	Tactical Admin	3+
2	Abort Run	4+
2	HUD failure	3+
30 10	Takeoff	4+
49	Mach Run	3+
49	30-Degree Pattern/Bombs	3+
49	20-Degree Pattern/Bombs	3+
49	10-Degree Pattern/Bombs	3+
49	10-Degree Strafe/Recovery	3+
49	30-Degree Rockets	3+
49	30-30 Pop	3+
49	Roll-In	3+
49	Tracking/Dive Angle	3+
49	CCIP Target Tracking	3+
49	Error Corrections	3+
49	Release/Firing Parameters	3+
49	Dive Recovery	3+
50	Off-Target Rendezvous	3+

Block #	Media	Title	Events	Hrs	H/X
STK21	OFT	Strike Emergency Procedures	1	1.3	1.3

1. Prerequisite. STK3101.

2. Syllabus Notes

a. STK2101 may be flown any time after STK3101.

b. The student will perform the following procedures IAW FTI, NATOPS, and SOP on this event: in-flight emergencies (any), introduce hung ordinance approach, pitot static malfunction, simo run, emergency jettison, HUD failure, lost communications procedures, lost interval procedures, and ejection situations.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and lost interval.

5. Block MIF

CTS REF	MANEUVER	STK2101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	3+
9	Tactical Admin	3+
2	Ground Emergencies	3
2	Aborted Takeoff	3

MIF continued on next page.

CTS REF	MANEUVER	STK2101
2	Takeoff EPs	3
2	Engine EPs	3
2	Flight Control EPs	3
2	Gear EPs	3
2	Electrical EPs	3
2	Hydraulic EPs	3
2	Ejection	3+
2	Lost Communications	3+
2	Abort Run	4+
2	HUD failure	3+
2	Pitot Static Malfunction	3+
2	Simo Run	3+
2	Emergency Jettison	3+
50	Hung Ordnance Approach	3+
2	Blown Tire during Takeoff/Landing	3+
30 10	Takeoff	4+
49	Mach Run	3+
49	30-Degree Pattern/Bombs	3+
49	Roll-In	3+
49	Tracking/Dive Angle	3+
49	Dive Recovery	3+
29	Pattern Stall/Recovery	4+
23	Landings	3+

Block #	Media	Title	Events	Hrs	H/X
STK41	T-45	Strike	4	4.4	1.1

1. Prerequisites

a. STK3106.

b. STK2101.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Brief 2+00 prior to takeoff for STK4102.

c. STK4101 shall be flown without ordnance loaded. The purpose of this flight shall be to reacquaint students with four-plane formation procedures and introduce high-angle-off rendezvous procedures.

d. STK4101 shall introduce a hung ordnance approach. Students will be exposed to 30-, 20-, and 10-degree patterns.

e. STK4102 shall introduce weapons preflight and hung ordnance checks. Students should fly both 30-degree and 20-degree patterns.

f. STK4103 will concentrate on the 30-degree pattern.

g. STK4104 shall include the 30-degree pattern and 10-degree pattern. Bombs do not need to be released in the 10-degree pattern.

h. For STK4102-4, a minimum of four bombs delivered is required to complete each event.

i. Students must complete three Off-Target Rendezvous within block.

3. Special Syllabus Requirements. None.

4. Discuss Items

STK4101
QOD, high-angle-off-tail rendezvous,and noncritical mission tasks.

STK4102
QOD, formation safety, mil settings, master arm safety, and inadvertent weapons release.
STK4103
QOD, wind corrections, and offset aimpoint.

STK4104
QOD, wind corrections, offset aimpoint, armament system management errors, and ordnance release troubleshooting.

5. Block MIF

CTS REF	MANEUVER	STK4104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
50	Hung Ordnance Approach	4+
30 10	Takeoff	4+
11	Rendezvous	4+
32	Formation Wing	4+
49	Mach Run	4+
49	30-Degree Pattern/Bombs	4+
49	20-Degree Pattern/Bombs	3

MIF continued on next page.

CTS REF	MANEUVER	STK4104
49	10-Degree Pattern/Bombs	3
49	Roll-In	4+
49	Tracking/Dive Angle	4+
49	Error Corrections	4+
49	Release/Firing Parameters	3+
49	Dive Recovery	4+
49	Accuracy	3+
50	Off-Target Rendezvous	4+
21	Precautionary Approach	4
23	Landings	3+

Block #	Media	Title	Events	Hrs	H/X
STK42	T-45	Strike Solo	2	2.2	1.1

1. Prerequisite. STK4104.

2. Syllabus Notes

a. STK4201-2 shall be flown with emphasis in the 30-degree and 10-degree patterns. Bombs need not be dropped in the 10-degree pattern.

b. Students must achieve a CEP of less than 200 feet on STK4201 or STK4202.

c. A minimum of four bombs delivered is required to complete each event.

3. Special Syllabus Requirement. None.

4. Discuss Items

STK4201-2
QOD and FTI safety procedures.

5. Block MIF

CTS REF	MANEUVER	STK4202
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
32	Formation Wing	4+
49	Mach Run	4+
49	30-Degree Pattern/Bombs	4+
49	20-Degree Pattern/Bombs	3
49	10-Degree Pattern/Bombs	4
49	Error Corrections	4+
49	Release/Firing Parameters	3+
49	Dive Recovery	4+
49	Accuracy	3+
50	Off-Target Rendezvous	4+
23	Landings	1

Block #	Media	Title	Events	Hrs	H/X
STK43	T-45	Strike	1	1.1	1.1

1. Prerequisite. STK4202.

2. Syllabus Notes

a. This event will be flown from the front cockpit.

b. CCIP delivery mode will be introduced. May be flown in the 30- or 10-degree pattern.

c. Introduce 10-degree strafe pattern.

d. A minimum of four bombs delivered is required to complete this event.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, safety requirements for forward firing ordnance, ricochet dangers (jinking), and emergencies.

5. Block MIF

CTS REF	MANEUVER	STK4301
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
32	Formation Wing	4+
49	Mach Run	4+
49	30-Degree Pattern/Bombs	4+
49	20-Degree Pattern/Bombs	3
49	10-Degree Pattern/Bombs	4+
49	10-Degree Strafe/recovery	3+
49	Roll-In	4+
49	Tracking/Dive Angle	4+
49	CCIP Target Tracking	3+
49	Error Corrections	4+
49	Release/Firing Parameters	4+
49	Dive Recovery	4+
49	Accuracy	3
50	Off-Target Rendezvous	4+
23	Landings	4+

Block #	Media	Title	Events	Hrs	H/X
STK44	T-45	Strike Solo	1	1.1	1.1

1. Prerequisite. STK4301.

2. Syllabus Notes

a. A minimum of four bombs delivered is required to complete this event.

b. CCIP bombing in the 30-degree and 10-degree patterns may be performed if they were accomplished on STK4301.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and FTI safety precautions.

5. Block MIF

CTS REF	MANEUVER	STK4401
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
32	Formation Wing	4+
49	Mach Run	4+
49	30-Degree Pattern/Bombs	4
49	20-Degree Pattern/Bombs	3
49	10-Degree Pattern/Bombs	4
49	CCIP Target Tracking	4
49	Error Corrections	4+
49	Release/Firing Parameters	4+
49	Dive Recovery	4+
49	Accuracy	3
50	Off-Target Rendezvous	4+
23	Landings	1

Block #	Media	Title	Events	Hrs	H/X
STK45	T-45	Strike	1	1.1	1.1

1. Prerequisite. STK4104.

2. Syllabus Notes

a. This event will be flown from the front cockpit.

b. STK4501 shall be flown as a pop event, introducing pop procedures and an extended pop pattern as detailed in the Weapons FTI; CCIP target tracking shall be used.

c. A minimum of four bombs delivered is required to complete this event.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, racetrack pattern, 30-30 pop, and abort criteria.

5. Block MIF

CTS REF	MANEUVER	STK4501
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
32	Formation Wing	4+
49	Mach Run	4+
49	30-30 Pop	3+
49	Roll-In	4+
49	Tracking/Dive Angle	4
49	CCIP Target Tracking	4
49	Error Corrections	4+
49	Release/Firing Parameters	4+
49	Dive Recovery	4+
49	Accuracy	3
50	Off-Target Rendezvous	4+
23	Landings	4+

Block #	Media	Title	Events	Hrs	H/X
TAC43	T-45	Advanced Tactical Formation	4	4.8	1.2

1. Prerequisite. TAC1202 (Advanced Tactical Formation Exam).

2. Syllabus Notes.

a. These events will be flown from the front cockpit.

b. TAC4303 and TAC4304 will include advanced tacform maneuvering, comm-out turns, forced cockpit loading, and offensive combat spread.

c. Student will lead at least one event back to the field.

3. Special Syllabus Requirements. None.

4. Discuss Items

TAC4303
QOD, position corrections after random maneuvers, comm-out tactical formation signals, and wingman deconfliction responsibilities.

5. Block MIF

CTS REF	MANEUVER	TAC4304
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3+
32	Formation Wing	4+
35	Defensive Combat Spread	4+
35	Offensive Combat Spread	3+
35	Check Turns	4+
35	Shackles	4+
35	Off-Heading Shackles	4+
35	Tac Turns	4+
35	In-Place Turns	4+
35	Cross Turns	4+
35	Advanced Tacform Maneuvering	3+
35	Forced Cockpit Loading	3
38	Loose Deuce Exercise	3+
39	Gunsight Tracking Exercise	3+
36	Tactical Rejoin	4+
13	Descent/Field Entry	3+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
TAC44	T-45	Advanced Tactical Formation Solo	1	1.2	1.2

1. Prerequisite. TAC4304.

2. Syllabus Notes. None.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and wingman deconfliction responsibilities.

5. Block MIF

CTS REF	MANEUVER	TAC4401
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Defensive Combat Spread	4+
35	Offensive Combat Spread	3+
35	Check Turns	4
35	Shackles	4+
35	Off-Heading Shackles	4+
35	Tac Turns	4+
35	In-Place Turns	4+
35	Cross Turns	4
35	Advanced Tacform Maneuvering	3+
39	Gunsight Tracking Exercise	3
36	Tactical Rejoin	4+
13	Descent/Field Entry	3+
23	Landing(s)	1+

Block #	Media	Title	Events	Hrs	H/X
BFM31	OFT	Out-of-Control Simulator	1	1.0	1.0

1. Prerequisite. Intermediate Jet (ASI0110).

2. Syllabus Notes. BFM3101 must be flown within two weeks of BFM41 block.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, runaway trim, engine flameout, ejection situations, locked-in compressor stall, airstart, and NATOPS Chapter 11.

5. Block MIF

CTS REF	MANEUVER	BFM3101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
30 10	Takeoff	4+
29	High AOA/Deep Stall Investigation/Rudder-Induced Departure	3+
29	70-Degree Nose-High Departure	3+
29	110-Degree Nose-High Departure	3+
29	90-Degree Nose-High Departure	3+
29	Adverse Yaw Departure	3+
2	Stuck Throttle Approach	3+
2	Blown Tire During Field Landing	4+
2	Field Arrestment with Blown Tire	4+
2	Airstart	4+
21	Precautionary Approach	4+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
BFM41	T-45	Basic Fighter Maneuvering (OCF/1 V 0)	1	1.1	1.1

1. Prerequisites

a. BFM1105 (1 V 1 Exam).

b. TAC4401.

c. BFM3101 (within the previous 14 days).

d. ON4105.

e. STK4501.

2. Syllabus Notes

a. This event will be flown from the front cockpit.

b. BFM4101 and BFM4201 may be scheduled and flown in any order. SNAs shall be prepared to fly any one of these flights when scheduled for the first event.

c. Ground reference is required.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, HUD air-to-air mode set-up, departure recovery procedures, spin recovery procedures, and training rules.

5. Block MIF

CTS REF	MANEUVER	BFM4101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
30 10	Takeoff	4+
41	Miscellaneous 1 V 0 Maneuvers	1+
29	High AOA/Deep Stall Investigation/Rudder-Induced Departure	3+
29	70-Degree Nose-High Departure	3+
29	110-Degree Nose-High Departure	3+
29	Adverse Yaw Departure	3+
13	Descent/Field Entry	4+
21	Precautionary Approach	4
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
BFM42	T-45	Basic Fighter Maneuvering (TACFORM Refresher)	1	1.1	1.1

1. Prerequisites

a. BFM1105 (1 V 1 Exam).

b. TAC4401.

c. BFM3101 (within the previous 14 days).

d. ON4105.

e. STK4501.

2. Syllabus Notes

a. This event will be flown from the front cockpit.

b. BFM4101 and BFM4201 may be scheduled and flown in any order. SNAs shall be prepared to fly any one of these flights when scheduled for the first event.

c. This flight shall be flown as a TACFORM refresher, during which each SNA shall fly half of the flight as the wingman.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, deck awareness, and departure recovery procedures.

5. Block MIF

CTS REF	MANEUVER	BFM4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	3+
35	Defensive Combat Spread	3+
35	Shackles	3+
35	Off-Heading Shackles	3
35	Tac Turns	3+
35	In-Place Turns	3+
35	Cross Turns	3
35	Advanced Tacform Maneuvering	3+
36	Tactical Rejoin	4+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
BFM43	T-45	Basic Fighter Maneuvering (Offensive 1 V 1)	3	3.3	1.1

1. Prerequisites

a. BFM4101 (within the previous 14 days).

b. BFM4201.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Brief for first flight in block shall be 2+00 hours prior to takeoff.

c. Students may be expected to lead return flights to base during BFM blocks at IP discretion.

3. Special Syllabus Requirements. None.

4. Discuss Items

BFM4301
QOD, BFM concepts and definitions, departure recovery procedures, and training rules.

BFM4302-3
QOD, BFM concepts and definitions, and training rules.

5. Block MIF

CTS REF	MANEUVER	BFM4303
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
41	Training Rules	3+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
41	Snap-Shot Drill	3+
41	Horizontal Scissors	3+
41	Rolling Scissors	3+
41	6,000-foot Perch Set	3+
41	9,000-foot Perch Set	3+
42	LAR Recognition	3+
42 43	Deck Awareness	3+
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
21	Precautionary Approach	4+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
BFM44	T-45	Basic Fighter Maneuvering Solo (Offensive 1 V 1)	1	1.1	1.1

1. Prerequisite. BFM4303.

2. Syllabus Notes. None.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, BFM concepts and definitions, and training rules.

5. Block MIF

CTS REF	MANEUVER	BFM4401
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
41	Training Rules	3+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
41	Snap-Shot Drill	3+
41	Horizontal Scissors	3+
41	Rolling Scissors	3+
41	6,000-foot Perch Set	3+
41	9,000-foot Perch Set	3+
42	LAR Recognition	3+
42 43	Deck Awareness	3+
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
23	Landing(s)	1+

Block #	Media	Title	Events	Hrs	H/X
BFM45	T-45	Basic Fighter Maneuvering (Defensive 1 V 1)	2	2.2	1.1

1. Prerequisite. BFM4401.

2. Syllabus Notes

a. These events will be flown from the front cockpit.

b. Students may be expected to lead return flights to base during BFM blocks at IP discretion.

3. Special Syllabus Requirements. None.

4. Discuss Items

BFM4501
QOD, BFM concepts and definitions, energy management, deck awareness, bugout, and training rules.

BFM4502
QOD, BFM concepts and definitions, and training rules.

5. Block MIF

CTS REF	MANEUVER	BFM4502
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
41	Training Rules	3+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
41	Snap-Shot Drill	3+
41	Horizontal Scissors	3+
41	Rolling Scissors	3+
41	6,000-foot Perch Set	3+
41	9,000-foot Perch Set	3+
43	WEZ Recognition	3+
42 43	Deck Awareness	3+
43	Separation (Bugout)	3+
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
21	Precautionary Approach	4+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
BFM46	T-45	Basic Fighter Maneuvering Solo (Defensive 1 V 1)	2	2.2	1.1

1. Prerequisite. BFM4502.

2. Syllabus Notes. None.

3. Special Syllabus Requirements. None.

4. Discuss Items

BFM4601-2
QOD, training rules, and in-flight emergencies.

5. Block MIF

CTS REF	MANEUVER	BFM4602
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
41	Training Rules	3+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
41	Snap-Shot Drill	3+
41	Horizontal Scissors	3+
41	Rolling Scissors	3+
41	6,000-foot Perch Set	3+
41	9,000-foot Perch Set	3+
43	WEZ Recognition	3+
42 43	Deck Awareness	3+
43	Separation (Bugout)	3+
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
23	Landing(s)	1+

Block #	Media	Title	Events	Hrs	H/X
BFM47	T-45	Basic Fighter Maneuvering (Neutral 1 V 1)	1	1.1	1.1

1. Prerequisites. BFM4602.

2. Syllabus Note. This event will be flown in the front cockpit.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, concepts and definitions, training rules, high-aspect BFM, one-circle engagement, two-circle engagement, energy management, controlling the merge, and maintaining/regaining sight.

5. Block MIF

CTS REF	MANEUVER	BFM4701
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
41	Training Rules	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
41	Snap-Shot Drill	4+
44	Butterfly Set	3+
44	Abeam Set	3+
44	BVR Set	3+
42	Offensive BFM	4+
43	Defensive BFM	4+
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
21	Precautionary Approach	4
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
BFM48	T-45	Basic Fighter Maneuvering Solo (Neutral 1 V 1)	1	1.1	1.1

1. Prerequisite. BFM4701.

2. Syllabus Notes. None.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, training rules, and in-flight emergencies.

5. Block MIF

CTS REF	MANEUVER	BFM4801
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
41	Training Rules	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
11	Rendezvous	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
41	Snap-Shot Drill	4+
44	Butterfly Set	3+
44	Abeam Set	3+
44	BVR Set	3+
42	Offensive BFM	4+
43	Defensive BFM	4+
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
23	Landing(s)	1+

Block #	Media	Title	Events	Hrs	H/X
SEM41	T-45	Section Engaged Maneuvering (2 V 1)	3	3.3	1.1

1. Prerequisites

   a. SEM1102.

   b. BFM4801.

2. Syllabus Notes

   a. These events will be flown from the front cockpit.

   b. Brief 2+00 prior to takeoff for SEM4101.

3. Special Syllabus Requirements. None.

4. Discuss Items

   SEM4101
   QOD, SEM concepts and definitions, training rules, engaged comm, and situational awareness.

   SEM4102-3
   QOD, SEM concepts and definitions, training rules, engaged comm, and non-scripted game plans (BVR).

5. Block MIF

CTS REF	MANEUVER	SEM4103
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
45	Engaged Communications	3+
45	Training Rules	4+
45	Mutual Support	3+
45	Abeam Set	3+
42	Offensive BFM	4+
43	Defensive BFM	4+
45	No Switch	3+
45	Multi-Switch	3+
45	BVR/Tap-the-Cap	3+
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
21	Precautionary Approach	4+
23	Landing(s)	4+

Block #	Media	Title	Events	Hrs	H/X
SEM42	T-45	Section Engaged Maneuvering Solo (2 V 1)	1	1.1	1.1

1. Prerequisite. SEM4103.

2. Syllabus Notes. None.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, training rules, in-flight emergencies, and BVR game plans.

5. Block MIF

CTS REF	MANEUVER	SEM4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Tactical Admin	4+
30 10	Takeoff	4+
31	Formation Lead	3
32	Formation Wing	4+
35	Tactical Wing	4+
45	Engaged Communications	3+
45	Training Rules	4+
45	Mutual Support	3+
45	Abeam Set	3
42	Offensive BFM	4
43	Defensive BFM	4
45	No Switch	3
45	Multi-Switch	3
45	BVR/Tap-the-Cap	3
9	Knock-It-Off	4+
36	Tactical Rejoin	4+
46	Sight/Lookout Doctrine	3+
23	Landing(s)	1+

Block #	Media	Title	Events	Hrs	H/X
CQL41	T-45	Carrier Qualification Landing Safe-for-Solo	1	0.7	0.7

1. Prerequisites

   a. Advanced Strike – completion of Intermediate Jet.

   b. Intermediate E-2/C-2 – FAM4702.

   c. Intermediate E-2/C-2 – NFM4301.

   d. Intermediate E-2/C-2 – FRM4601.

2. Syllabus Notes

   a. Shall be flown at night. LSO not required on station.

   b. Shall be flown within two weeks of CQL4201.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, Delta pattern, preflight/ground operations, pattern entry, and communications.

5. Block MIF

CTS REF	MANEUVER	CQL4101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
52	FCLP Pattern	4+
17	ILS to Visual Approach and Landing	3
23	FF Roll-and-Go	4+
23	FF Touch-and-go	4+
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
CQL42	T-45	Carrier Qualification Landing Solo	11	6.6	0.6

1. Prerequisites

a. Students must have a minimum of 270 FCLP-type landings in the T-45 prior to beginning Carrier Qualification Landing Stage (CQL4201).

b. CQL4101 (within two weeks).

c. CQL1101 (Day/Night FCLP Refresher).

2. Syllabus Notes

a. One night FCLP period under LSO control is required during CQL. A total of three night FCLP periods under LSO control must be flown prior to CQL43.

b. A minimum of six FCLP-type landings are required on each event.

c. All night CQL flights shall take off no earlier than 30 minutes after official sunset.

d. Up to three FCL/CQL events may be scheduled per day.

e. Landing grades are at the sole discretion of the LSOs.

f. Night CQL shall not be flown prior to CQL4203.

g. Only CQL events shall be scheduled from CQL4201 through the completion of CQL4490.

3. Special Syllabus Requirements. None.

4. Discuss Items

CQL4201
QOD, Delta pattern, preflight/ground operations, pattern entry, and communications.

CQL4202
QOD, pattern procedures, arrestment procedures, Case I procedures, and trend analysis.

CQL4203
QOD and deck procedures.

CQL4204
QOD, Bingo/divert procedures, and GINA failure.

CQL4205
QOD, departure procedures, and return-to-base procedures.

CQL4206
QOD, carrier-related emergencies, and Case II arrival procedures.

CQL4207
QOD and carrier pattern.

CQL4208
QOD and carrier procedures.

CQL4209
QOD and carrier pattern.

CQL4210-11
QOD.

5. Block MIF

CTS REF	MANEUVER	CQL4211
1	General Knowledge/Procedures	1+
2	Emergency Procedures	1+
3	Headwork/Situational Awareness	1+
4	Basic Airwork	1+
5	Mission Planning/Briefing/ Debriefing	1+
6	Communications	1+
7	Ground Operations	1+
8	Flight Admin	1+
10	Takeoff	1+
11	Departure	1+
13	Descent/Field Entry	1+
52	FCLP Pattern	1+
52	Start Position	1+
52	AOA Control	1+
52	Glideslope Control	1+
52	Power Control	1+
52	Lineup Control	1+
52	Error Detection/Correction	1+
52	Response to LSO Calls	1+
52	Bolter/Touch-and-Go Technique	1+
52	Waveoff Technique	1+
23	Full-Stop Landing	1+

Block #	Media	Title	Events	Hrs	H/X
CQL31	OFT	Carrier Qualification Landing Simulators	2	2.8	1.4

1. Prerequisite. CQL1102 (CQL Shipboard Procedures).

2. Syllabus Notes

a. Up to three FCL/CQL events may be scheduled per day.

b. CQL3102 will continue shipboard procedures with emphasis on emergencies.

3. Special Syllabus Requirements

CQL3101
Demonstrate CVN flight operations with emphasis on field departure to shipboard recovery.

4. Discuss Items

CQL3101
QOD, Delta pattern (CV vs field), Case I arrival, shipboard alignment, Case I/II departure, use of FLOS/IFLOS in NORDO, Bingo, and waveoff situations.

CQL3102
QOD, preflight/ground operations, communications, CV terms and comm brevity, pattern entry, shore-to-ship checklist, ship-to-shore checklist, and Bingo card data.

5. Block MIF

CTS REF	MANEUVER	CQL3102
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+

MIF continued on next page.

CTS REF	MANEUVER	CQL3102
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
2	Ground Emergencies	3
2	CV Emergencies	3+
2	CV Arrestment w/Blown Tire(s)	2+
2	Bolter w/Blown Tire(s)	3+
2	Field Arrestment w/Blown Tire(s)	3+
2	Bingo	4+
10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
51	CV Arrival (Case I/II)	3+
52	CV Pattern	3+
52	Start Position	3+
52	AOA Control	2+
52	Glideslope Control	2+
52	Power Control	2+
52	Lineup Control	2+
52	Error Detection/Correction	2+
52	Response to LSO Calls	4+
52	Bolter/Touch-and-Go Technique	4+
52	Waveoff Technique	4+
51	CVN Flight Deck Procedures	3+
51	Catapult Launch Procedures	3+
51	CVN Arrestment Procedures	3+
	Special Syllabus Requirements	1

Block #	Media	Title	Events	Hrs	H/X
CQL21	OFT	Emergency Procedures (CQL)	1	1.5	1.5

1. Prerequisites

a. CQL4205.

b. CQL1102 (CQL Shipboard Procedures).

2. Syllabus Note. Up to three FCL/CQL events may be scheduled per day.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD, carrier-related emergencies, ditching situations, and short-field arrestments.

5. Block MIF

CTS REF	MANEUVER	CQL2101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
2	Ground Emergencies	4+
2	CV Emergencies	4+
2	Suspend Procedures	4+
2	Brake Failure on Deck	4+
2	Lost Communications at CVN	4+
2	NWS Failure	4+

MIF continued on next page.

CTS REF	MANEUVER	CQL2101
2	Launch Bar Malfunction	4+
2	Catapult Malfunctions	4+
2	GINA Failure	4+
2	Swerve on Touchdown	4+
2	Ejection	4+
2	CV Arrestment w/Blown Tire(s)	4+
2	Bolter w/Blown Tire(s)	4+
2	Field Arrestment w/Blown Tire(s)	4+
2	Bingo	4+
10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
51	CV Arrival (Case I/II)	4+
52	CV Pattern	4+
52	Start Position	3+
52	AOA Control	2+
52	Glideslope Control	2+
52	Power Control	2+
52	Lineup Control	2+
52	Error Detection/Correction	2+
52	Response to LSO Calls	4+
52	Bolter/Touch-and-Go Technique	4+
52	Waveoff Technique	4+
51	CVN Flight Deck Procedures	4+
51	Catapult Launch Procedures	4+
51	CVN Arrestment Procedures	4+

Block #	Media	Title	Events	Hrs	H/X
CQL43	T-45	Carrier Qualification Landing Solo Check Flight (Field)	1	0.6	0.6

1. Prerequisites

   a. CQL4211.

   b. CQL3102.

   c. CQL2101.

2. Syllabus Notes

   a. Up to three FCL/CQL events may be scheduled per day.

   b. CQL4390 shall not be shotgunned for any reason.

   c. Landing grades are at the sole discretion of the LSOs.

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

CTS REF	MANEUVER	CQL4390
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/ Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
52	FCLP Pattern	4+
52	Start Position	4+
52	AOA Control	4+
52	Glideslope Control	4+
52	Power Control	4+
52	Lineup Control	4+
52	Error Detection/Correction	4+
52	Response to LSO Calls	4+
52	Bolter/Touch-and-Go Technique	4+
52	Waveoff Technique	4+
23	Full-Stop Landing	4+

Block #	Media	Title	Events	Hrs	H/X
CQL44	T-45	Carrier Qualification Landing Solo Check Flight (Ship)	1	4.2	4.2

1. Prerequisites

a. CQL4390.

b. CQL1104 (Ship's Brief Exam).

2. Syllabus Notes

a. CQL4490 shall not be shotgunned for any reason.

b. Four carrier touch-and-go landings and ten carrier-arrested landings required for completion.

c. A student shall have a warmup CQL4386 if more than two days have elapsed since CQL4390 or day touch-and-go/arrestment at the ship.

d. A maximum of six carrier arrestments are permitted for CNATRA students per day. This is waiverable by the CNATRA LSO.

e. Students are limited to two CQL flights with a maximum of three manups per day.

f. A maximum of 3.5 flight hours is permitted per one carrier qualification landing flight for students, to commence at takeoff and terminate with engine shutdown.

g. A maximum of five total flight hours per day is permitted for students.

h. Students shall be designated as qualified with a GPA of 2.50 or better and a 60 percent boarding rate or better provided MIF for the block has been met. Additionally, the TRAWING LSO, with CNATRA LSO approval, may qualify students with less than a 2.50 GPA based on improving trends. Grading criteria is provided in Landing Signal Officer NATOPS Manual (NAVAIR 00-80T-104) and Carrier Qualification Flight Training Instruction (CNATRA P-1211 (7-01)).

i. Requalifying students shall attain a 2.50 GPA or better. The rest of note (h) applies.

j. Landing grades are at the sole discretion of the LSOs.

3. Special Syllabus Requirements. None

4. Discuss Items. QOD and carrier qualification landing procedures.

5. Block MIF

CTS REF	MANEUVER	CQL4490
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
30 10	Takeoff	4+
11	Departure	4+
13	Descent/Field Entry	4+
51	CV Arrival (Case I/II)	4+
52	CV Pattern	4+
52	Start Position	4+
52	AOA Control	4+
52	Glideslope Control	4+
52	Power Control	4+
52	Lineup Control	4+
52	Error Detection/Correction	4+
52	Response to LSO Calls	4+
52	Bolter/Touch-and-Go Technique	4+
52	Waveoff Technique	4
51	CVN Flight Deck Procedures	4+

MIF continued on next page.

CTS REF	MANEUVER	CQL4490
51	Catapult Launch Procedures	4+
51	CVN Arrestment Procedures	4+
23	Full-Stop Landing	1+

Chapter IX

Course Training Standards (CTS)

1. Purpose. These standards outline the tasks and proficiency required of graduates of this syllabus.

2. Student Duties and Responsibilities

a. Plan the mission.

b. Ensure the aircraft is preflighted, inspected, and equipped for the assigned mission.

c. Operate the aircraft to accomplish the mission using sound judgment and airmanship.

3. General Standards

a. Achieve training standards for Visual Meteorological Condition (VMC) maneuvers in conjunction with visual clearing.

b. Unless otherwise specified, use **Basic Airwork (BAW)** standards for all items with altitude, airspeed, or heading parameters.

c. "Standard" equates to **good** (G/4).

d. Aircraft control must be smooth and positive. Performance may be within CTS and still not warrant a grade of ***good*** if control inputs are delayed, erratic, imprecise, or inappropriate. Slight deviations in establishing or maintaining the proper or desired aircraft attitude or position may occur during the maneuver being performed.

e. Momentary deviations outside CTS that do not compromise flight safety are acceptable if subsequent corrections are timely.

f. Procedural knowledge and application must comply with applicable directives and allow efficient mission accomplishment. If individual tasks require pre-mission planning, the standards from **Mission Planning** apply.

4. Execution. The Maneuver Item File (MIF) regulates student progression to meet required standards prior to phase completion. Instructor Pilots shall evaluate student performance against these standards.

5. Job Tasks. Specific performance and standards required are described as follows:

BEHAVIOR STATEMENT	STANDARDS
GRADED ITEM	
• A brief description of the behavior, required action, and/or conditions.	• The specific standards for the action. May be read as "The student aviator . . ."

6. Graded Items. The Maneuver Item File (MIF) for specific graded items varies for each stage. Several items are graded on all complete syllabus events. The standards for these universally graded items are listed first.

7. Course Training Standards

BEHAVIOR STATEMENT	STANDARDS
1. General Knowledge/Procedures	
• Demonstrate knowledge of aircraft systems, procedures, and associated directives and instructions.	• Demonstrates a thorough understanding of aircraft systems capabilities, aircraft directives, AFI's, and local procedures. • Knowledgeable of local working area WRT boundaries, altitudes, and significant landmarks without reference to in-flight guide or charts. • Demonstrates ability to apply procedures from all applicable source guidance.

BEHAVIOR STATEMENT	STANDARDS
2. Emergency Procedures	
• Recognize system malfunction and/or emergency situation.	• Expeditiously analyzes situation and systems and recognizes malfunction or emergency situation. • Maintains control of aircraft while responding appropriately to malfunction/emergency. • Maneuvers aircraft smartly to prevent degradation of situation with respect to external factors such as weather, traffic, etc.
• Perform NATOPS immediate action emergency procedures.	• Verbally states emergency NATOPS immediate action items in sequence, from memory, without error. • Performs proper steps of emergency NATOPS immediate action items in sequence, from memory, without error.
• Perform NATOPS non-critical action emergency procedures to include: ▶ Analysis of hypothetical aircraft malfunctions. ▶ Simulated precautionary approaches and actual no-flap landings performed in the aircraft. ▶ Life support training, survival, and physiological training IAW NATOPS.	• Performs proper steps to a satisfactory conclusion, effectively using NATOPS PCL to troubleshoot or complete NATOPS procedures. • Incorporates effective CRM to secure additional assistance where applicable. • Maintains situational awareness WRT local area and airfields while troubleshooting systems/responding appropriately to situation. • Successfully recovers aircraft to suitable airfield or recognizes extremis situation and initiates ejection within safe parameters.

BEHAVIOR STATEMENT	STANDARDS
2. Emergency Procedures (continued)	
• Lost communications	• Performs proper steps to a satisfactory conclusion, effectively using FIH to troubleshoot or complete lost communication procedures.
3. Headwork/Situational Awareness	
• Assess self and aircraft in relation to the dynamic environment of flight, threats, and mission forecast; then execute tasks based on this assessment. • Utilize CRM.	• Understands instructions, demonstrations, and explanations. • Remains alert and spatially oriented. • Correctly interprets in-flight events and applies strategies to proactively address them. • Recognizes and avoids channelized attention. • Effectively utilizes seven key skills of CRM throughout all portions of flight training.
4. Basic Airwork	
• Perform general aircraft control and composite/instrument cross-check as appropriate.	• Maintains smooth positive aircraft control at all times. • Ensures momentary deviations, ±10 seconds, do not exceed: ► Airspeed: ±5 percent. ► Altitude: ±100 feet. ► Heading: ±5 degrees. ► Course: ±3 NM. ► AOA: ±1 unit. • Avoids hazards (ground obstructions, terrain, other aircraft, and severe weather).
• Perform general aircraft control and composite/instrument cross-check in a partial panel situation.	• Smoothly transitions to/from partial panel instrument scan as situation dictates. • Maintains course, altitude, and glideslope with minor deviations and appropriate error corrections for entirety of approach. • Deviations do not jeopardize safety of flight.

BEHAVIOR STATEMENT	STANDARDS
5. Mission Planning/Briefing/Debriefing	
• Perform appropriate mission planning to include route selection, weather, NOTAMS, fuel optimization, computing takeoff, climb, enroute, descent, approach, and landing data: planning mission profile and alternate course of action where appropriate.	• Plans mission in a timely manner to meet training objectives, complete all applicable Navy and command forms correctly, and complies with all directives. • Applies OPNAV3710 filing and approach criterion to planning and execution of flight. • Aware of alternatives available, if flight cannot be completed as planned.
• Attend/conduct pre- and postmission briefing/debriefing for simulator or aircraft event.	• Briefs IAW NATOPS and command directives. • Asks questions, if necessary, to fully understand the mission overview and mission objectives, including ORM. • Clearly presents all information requested during briefing/ debriefing. • Understands all CRM objectives and expectations for the mission. • Understands contingencies and plans to contend with them. • Effectively compares mission results with briefed objectives. • Displays professional attitude and ability to accept instruction.

BEHAVIOR STATEMENT	STANDARDS
6. Communications	
• Verbal	• Makes concise, timely transmissions and responses, using proper radio discipline with standard terminology. • Makes required radio calls IAW FLIP requirements. • Understands and prioritizes transmissions in a multiple communications (UHF/VHF/ICS) environment. • Asks for and provides clarification when necessary. • Maintains effective 2-way communication with other crew members.
• Visual	• Ensures visual signals are clearly visible to lead/wingman and IAW NATOPS, FTI, or flight briefing.
7. Ground Operations	
• Inspect and wear appropriate flight equipment.	• Complies with NATOPS and command directives.
• Perform exterior inspection, prestart and pretaxi checks to adhere to takeoff times within published tolerances.	• Determines aircraft status and accepts or rejects aircraft based on NATOPS/command directives. • Completes required checks correctly. • Complies with NATOPS procedures and standardization tolerances. • Ensures clearance of line personnel, ground equipment, and other aircraft using appropriate signals prior to activation of aircraft systems.
• Coordinate checks with other aircrew for formation flight.	• Performs all checks, to include formation flight procedures IAW applicable directives.

BEHAVIOR STATEMENT	STANDARDS
7. Ground Operations (continued)	
• Perform taxi to/from runway.	• Taxis at speeds commensurate with traffic and surface conditions, following prescribed route and giving way to other aircraft as appropriate. • Avoids hazards and ground obstructions.
• Complete "Instrument," "Before Takeoff," and "After Landing" checklists.	• Completes IAW NATOPS procedures.
• Perform the engine shutdown checklist.	• Completes IAW NATOPS procedures.
• Perform postflight inspection and administrative duties.	• Completes all postflight checks and administrative duties IAW NATOPS and applicable directives. • Thoroughly debriefs Maintenance Control on any aircraft discrepancies and ensures appropriate MAF filed.
8. Flight Admin	
• Perform in-flight planning and administrative functions, to include:	
► General.	• Adjusts mission profile to comply with time/fuel limitations, as well as weather and area limits. • During advanced phase training, Flight Admin will also encompass ground operation, takeoff, departure, enroute navigation, and descent/field entry (Course Training Standards 7, 10, 11, 12, and 13).
► Local course rules.	• Complies with established routes, altitudes, and procedures for operating in local airspace environment.

BEHAVIOR STATEMENT	STANDARDS
8. Flight Admin (continued)	
► Area management.	• Uses assigned airspace in an efficient manner with minimum delay between maneuvers. • Remains within area boundaries with or without ground references.
► Task management.	• Prioritizes and accomplishes tasks in order of importance as it pertains to flight and mission accomplishment. • Properly utilizes mission cross-check time based on terrain/task load/personal performance.
► Fuel management.	• Actively monitors fuel state throughout the mission. • Complies with all established fuel requirements. • Recognizes Joker or Bingo fuel within ±100 lbs of briefed quantity and make timely call to IP/lead. • Regulates flight profile, throttle, and configuration to optimize fuel consumption as appropriate for the mission profile and training objectives.
► Weather planning.	• Recognizes and applies OPNAV/FLIP weather minima required for selected type of approach to field.
► In-flight checks.	• Completes all checklist items correctly and at proper point in mission, to include checking over other aircraft in the flight, IAW applicable directives.

BEHAVIOR STATEMENT	STANDARDS
9. Tactical Admin	
• Perform tactical flight maneuvering and administrative items to include:	
► G-warm.	• Performs G-awareness turns IAW OPNAV 3710 and TACFORM FTI. • Ensures proper anti-G straining technique and proper anti-G suit operation. • Maintains G-loading within NATOPS limits.
► Armament system management.	• Manages armament system to ensure proper program for current mission. • Ensures proper system management after exercise has been terminated.
► Combat (FENCE) checks.	• Completes combat checks per FTI, and expeditiously reports FENCE check completion.
► Knock-It-Offs (KIO).	• Makes and responds to Knock-It-Off calls IAW training rules. • Safely maneuvers aircraft to deconflict with other aircraft while returning to prebriefed position.
► G/Fuel checks.	• Knows and expeditiously maneuvers aircraft to proper position, altitude, and distance for next expected syllabus maneuver.
► PADs.	• Correctly reports postmaneuvering maximum “g” attained and current fuel state prior to arriving at PADs and without prompting from IP/Lead.
► Battle damage checks.	• Completes battle damage checks per FTI and expeditiously reports completion.
* NOTE: Tactical Wing is always a separately graded item.	

BEHAVIOR STATEMENT	STANDARDS
10. Takeoff	
• Perform individual takeoff to include: ► Runup check. ► Linespeed check. ► Retracting gear/ flaps. ► Accelerating to climb airspeed.	• Maintains position during engine runup for static takeoff. • Maintains runway centerline ±5 feet during takeoff. • Rotates within -0 to +10 kts of computed rotation speed and maintains desired pitch attitude ±2 degrees. • Establishes and maintains proper takeoff attitude at appropriate airspeed for existing conditions. • Initiates gear and flap retraction when safely airborne and ensures fully retracted prior to exceeding 200 KIAS.
• Transition to instruments as required.	• Properly transitions to flight instruments as required for actual or simulated weather conditions.
11. Departure/Rendezvous	
• Safely maneuver aircraft out of airfield environment. ► IFR. ► VFR.	• Performs departure as published or directed. • Complies with all restrictions. • Achieves and maintains target climb schedule airspeeds ±10 KIAS or 0.02 Mach at target altitudes ±1,000 feet. • Initiates level-off at desired altitude using the 10% rule. • Promptly establishes cruise airspeed.
• Interval departure/ rendezvous.	• Accomplishes using proper procedures and techniques per FORMATION FTI.

BEHAVIOR STATEMENT	STANDARDS
12. Enroute Navigation	
• Perform enroute navigation to include:	• Complies with basic airwork standards. • Compensates for known wind drift as required.
► Climbs/Descents	• Maintains target airspeed ±10 kts. • Levels off at desired altitude ±100 feet using 10% rule. • Complies with all restrictions.
► Intercept/Maintain course - perform VOR or TACAN course intercepts inbound, outbound, or immediately after station passage, and maintain VOR, TACAN, or RNAV course.	• Establishes a valid intercept. • Maintains course ±5 degrees (RNAV: ±5 NM).
► Arcing - Perform VOR/DME and TACAN radial-to-arc intercepts and maintain arcs.	• Establishes valid arc intercept, utilizing appropriate lead turn as needed. • Maintains arc ±1 mile. • Establishes valid arc-to-radial intercept.
► Direct/Point-to-point.	• Performs steps for TACAN or VOR/DME point-to-point IAW Instrument NATOPS. • Enters proper fix into GINA and proceeds direct using RNAV procedures. • Uses small infrequent heading changes.
► STAR - Perform standard arrival (STAR) procedure IAW FLIP publication.	• Establishes valid course intercepts and maintains courses ±5 degrees. • Establishes valid arc/radial intercepts and maintains arcs ±1 mile. • Meets all altitude/airspeed restrictions.

BEHAVIOR STATEMENT	STANDARDS
13. Descent/Field Entry	
• Perform a descent and traffic entry, to include: ► Climbs/descents enroute descent. ► Climbs/descents max range descent. ► Climbs/descents field break.	• Executes as published or directed. • Complies with all restrictions and directives. • Analyzes internal and external factors to select most effective method of descent (enroute or max range). • Utilizes RADALT effectively to observe platform and subsequent altitude restrictions. • Observes "minute to live" rule (unless scenario or circumstances specifically dictate otherwise). • Establishes proper interval for pattern entry. • Maintains break altitude ±100 feet until established on downwind. • Configures in adequate time to perform landing and AOA/airspeed checks prior to approach turn 90-degree position.
14. Dead Reckoning Navigation	
• Perform visual navigation procedures, to include chart interpretation.	• Identifies chart symbols with prominent landmarks along route. Navigates via dead reckoning or waypoint navigation, as applicable.
15. Holding	
• Perform high- and low-altitude VOR/TACAN/ RNAV holding as described by controller or IAW FLIP document.	• Performs published/standard entry procedures and maintains designated pattern IAW Instrument NATOPS and FTI. • Complies with holding pattern limits: ► Uses proper voice procedures. ► Maintains holding airspeed ±5 KIAS.

BEHAVIOR STATEMENT	STANDARDS
16. High Altitude Penetration	
• Perform a VOR, VOR/DME, TACAN, or RNAV penetration (arc/radial intercept) from IAF to FAF, as published in FLIP document or local procedures.	• Complies with published penetration course, arc, and altitudes. • Complies with basic airwork standards. • Establishes valid intercepts. • Maintains course ±3 degrees. • Establishes valid arc/radial intercepts. • Maintains arcs ±1 mile.
17. Precision Approach	
• Perform precision approaches as published in FLIP document or local procedures, to include: ► ILS approach. ► PAR approach. ▪ Normal PAR. ▪ No-Gyro PAR.	• Complies with published approach and NATOPS procedures. • Maintains target AOA or final approach airspeed ±1 unit AOA or ±5 KIAS during final descent. • Arrives at DA in position to maintain a normal visual glidepath to the runway and land safely. • Maintains CDI and GSI within one dot deflection. • Maintains ±3 degrees of assigned heading (except gyro out) and does not achieve multiple "well above" or "well below" glidepath calls.
18. Non-Precision Approach	
• Perform non-precision approaches as published in FLIP document or local procedures, to include: ► Localizer approach or BC localizer.	• Complies with published approach and NATOPS procedures. • Arrives at and maintains MDA –0/+100 feet at or prior to VDP. • Arrives in position to maintain a normal visual glidepath to the runway and land safely. • Begins timing within 5 seconds, if appropriate. • Maintains target AOA or final approach airspeed ±1 unit AOA or ±5 KIAS after FAF. • Maintains CDI within one dot deflection.

BEHAVIOR STATEMENT	STANDARDS
18. Non-Precision Approach (continued)	
► TACAN or VOR/DME approach.	• Maintains target AOA or final approach airspeed ±1 unit AOA or ±5 KIAS after FAF. • Maintains final approach course ±5 degrees.
► ASR approach.	• Maintains target AOA or final approach airspeed ±1 unit AOA or ±5 KIAS during and after descent to MDA. • Maintains ±3 degrees of assigned heading (except No-Gyro). • Does not exceed 1 call of "well left/right of course" and complies with controller's instructions in a timely manner. • Observes "minute to live" rule during descent to MDA.
19. Circling Approach/Maneuver	
• Perform a circling approach and maneuver as published in FLIP document or local procedures.	• Accomplishes IAW Instrument FTI and Instrument NATOPS. • Prior to circling maneuver, maintains course and altitude IAW non-precision approach standards. • During maneuver, maintains circling MDA –0 feet, and maintains visual reference to the airport until acquiring visual glidepath. • Positions aircraft for a safe landing.
20. Missed Approach	
• Perform a missed approach and partial panel missed approach. • Perform climbout for additional approaches.	• Complies with FLIP document and ATC instructions for missed approach or climbout instructions. • Completes IAW Instrument FTI and Instrument NATOPS.

BEHAVIOR STATEMENT	STANDARDS
21. Precautionary Approach	
• Perform precautionary approach IAW NATOPS, FTI and local SOP/ course rules, to include: ► Overhead. ► Abeam. ► Straight-In.	• Properly coordinates maneuver with ATC. • Effectively manages airspace for entry, including appropriate voice reports. • Effectively manages energy state via configuration and maintains profile without manipulation of throttle. • Utilizes target airspeed and altitude checkpoints (±15 kts, +300/-200 feet) to effectively maintain profile. • Manages flare adequately to touch down in first third of runway. • Safely achieves flight with flying airspeed, mil power, and speedbrakes retracted during touch-and-go.
• Performs precautionary instrument approach IAW NATOPS, FTI and local SOP/course rules, to include: ► Low oil approach. ► Min/emer fuel approach.	• Properly coordinates maneuver with ATC. • Effectively manages energy state via configuration to maintain adequate approach profile.

BEHAVIOR STATEMENT	STANDARDS
22. VFR Landing Pattern	
• Perform entry into visual landing pattern to include:	
► Visual straight-in.	• Configures in adequate time to perform landing and AOA/airspeed checks prior to glideslope acquisition and/or final descent. • Makes timely corrections for glideslope, AOA and lineup deviations. • Applies crosswind corrections adequately to maintain centerline both on final and during/after touchdown.
► Downwind entry.	• Configures in adequate time to perform landing and AOA/airspeed checks prior to 180 position. • Makes timely corrections for glideslope, AOA, and lineup deviations. • Applies crosswind corrections adequately to maintain centerline both on final and during/after touchdown.
► Overhead pattern.	• Maintains pattern altitude ±50 feet on downwind. • Makes appropriate crosswind corrections on downwind to arrive at proper abeam distance. • Initiates approach turn with appropriate extension off of abeam to achieve proper groove length. • Manages energy state and makes timely corrections to deviations throughout approach turn.

BEHAVIOR STATEMENT	STANDARDS
23. Landing/Touch-and-Go	
● Perform touch-and-go or full-stop landing to include the following:	
► Touch-and-go. ▪ Full-flap. ▪ Half-flap. ▪ No-flap. ▪ Crosswind.	● References optical landing system, if available, to achieve safe approach glideslope. ● Touches down at proper pitch attitude, maintains proper ground track, uses crosswind controls as required. ● Touches down in prescribed landing zone IAW NATOPS and local procedures. ● Touches down with no greater than -600 fpm rate of descent for flap configurations other than full.
► Field carrier landing (FLOLS/IFLOLS).	● Performs graded touch-and-go or full-stop landing utilizing Fresnel lens without LSO control. ● Adjusts AOB from 90 to the start to roll-out on centerline ±15 degrees. ● Adequately manages energy state during wings-level transition to maintain reasonable VSI. ● Makes timely and appropriate corrections to glideslope, AOA, and lineup deviations. ● Applies crosswind corrections adequately to maintain centerline both on final and during/after touchdown.
► Roll-and-go. ▪ Full-flap. ▪ No-flap.	● Maintains runway alignment using aileron, rudder, and nosewheel steering to track down runway. ● Recognizes groundspeed checkpoints and executes go-around at target airspeed ±5 KIAS/±200 feet of target runway remaining.

BEHAVIOR STATEMENT	STANDARDS
23. Landing/Touch-and-Go (continued)	
► Full-stop.	● Applies appropriate crosswind corrections and maintains runway alignment using aileron, rudder, and nosewheel steering. ● Applies braking smoothly and effectively. ● Slows to taxi speed prior to turnoff.
24. Waveoff	
● Perform waveoff procedures.	● Immediately executes waveoff procedures when required or directed, maintaining landing attitude/AOA until safe climb established. ● Maintains safe lateral separation from interval aircraft in VFR pattern.
25. Basic Instrument Maneuvers	
● Perform instrument training maneuvers as described in Instrument FTI or as directed, full or partial panel, to include:	
► Climbs/descents.	● Effectively utilizes power to maintain airspeed ±10 kts. ● Maintains target VSI ±200 fpm. ● Levels off at desired altitude ±100 feet using 10% rule.
► Level speed changes.	● Maintains altitude ±100 feet. ● Achieves and maintains target airspeed ±5 kts.

BEHAVIOR STATEMENT	STANDARDS
25. Basic Instrument Maneuvers (continued)	
► Timed turns.	● Maintains standard or one-half standard turn rate to achieve desired heading change in appropriate time period, ±5 seconds. ● Uses indicated airspeed to appropriately determine AOB. ● Monitors turn needle and adjusts AOB as required to maintain standard or one-half standard turn rate.
► Turn pattern.	● Effectively utilizes power to maintain airspeed ±5 kts. ● Maintains altitude ±100 feet. ● Performs turn reversals at target heading ±5 degrees.
► Vertical S maneuvers: ▪ S-1 pattern. ▪ S-3 pattern.	● Maintains VSI ±300 fpm. ● Maintains ±10 KIAS of desired airspeed. ● Maintains AOB ±10 degrees. ● Reverses direction or level off ±200 feet of desired altitude. ● Maintains timing ±10 seconds. ● Makes timely and appropriate corrections for deviations.
► Slow flight maneuver.	● Reconfigures aircraft at appropriate airspeed, maintaining ±200 feet of target altitude. ● Maintains target airspeed ±5 kts or on-speed AOA ±2 units once established. ● Establishes target ROD ±200 fpm.

BEHAVIOR STATEMENT	STANDARDS
26. Familiarization Maneuvers	
• Perform familiarization maneuvers as described in the FTI or as directed, to include:	
► Vertical recovery.	• Executes IAW FAM FTI descriptions, to include: ► Attains stabilized target entry airspeed ±10 kts. ► Smoothly applies back stick to achieve approx. 3.5 g (±0.5 g) without exceeding 17 units or entering pitch buck. ► Elevates nose to and maintains attitude at 60 degrees (±3 degrees) until recovery. ► Initiates recovery at target airspeed ±5 kts.
► Min radius turn.	• Begins maneuver with sufficient altitude excess to complete maneuver. • Maintains AOA at 17 ±1 unit and airspeed ±10 kts throughout turns. • Prevents excessive nose "ballooning" during reversals (100 feet maximum). • Completes reversal and final rollout ±5 degrees of target heading.

BEHAVIOR STATEMENT	STANDARDS
27. Aerobatics	
• Perform instrument aerobatic maneuvers IAW Instrument FTI, to include: ► Aileron roll. ► Wingover. ► Barrel roll. ► Loop. ► One-half Cuban eight. ► Immelmann. ► Split-S.	• Verbalizes and attains target entry parameters (±5 kts, ±100 feet) prior to beginning the maneuver. • Flies in a smooth, positive, and coordinated manner. • Achieves and maintains target g load ±1 g and AOA ±2 units during overhead maneuvers. • Executes rolling maneuvers at target attitude ±5 degrees. • Exits maneuver at original entry parameters ±500 feet, ±20 kts, ±10 degrees.
• Perform maneuvers listed above in visual environment IAW Familiarization FTI. In addition, perform squirrel cage.	• Plans maneuver entries to remain within area boundaries. • Ensures primary emphasis during aerobatic maneuvers is on use of outside references. • Efficiently links series of maneuvers.
28. Unusual Attitude Recoveries	
• Perform recoveries IAW appropriate FTI for: ► Nose-high recovery.	• Uses correct instrument flight references throughout recoveries. • Recovers to level flight expeditiously without stalling or exceeding aircraft limitations.
► Nose-low recovery.	• Recovers to level flight without excessive altitude loss, stall, or exceeding aircraft limitations. • Recovery is complete when the descent is stopped.

BEHAVIOR STATEMENT	STANDARDS
29. Stall/OCF Recognition and Recovery	
• Perform approaches to stall, full stalls, and recoveries IAW FTI, to include the following: ► Power-off stall. ► Break turn stall. ► Landing attitude maneuver. ► Landing attitude stall. ► Approach turn stall. ► Accelerated stall.	• Effectively trims aircraft for level flight/on-speed prior to commencing maneuver. • Maintains altitude ±100 feet and VSI 0±200 fpm prior to stall. • Recognizes approach to stall indications and recovers IAW NATOPS and FTI procedures, with minimum loss of altitude (recovery complete when two positive rates of climb established). • Recognizes full stall indications and recovers IAW NATOPS and FTI procedures with minimum loss of altitude (recovery complete when two positive rates of climb established). • Recognizes secondary stall, if entered, and recovers properly. • Does not exceed gear/flap limitation airspeeds.
• Performs OCF maneuvers IAW FTI, to include: ► High AOA/deep stall investigation. ► 70-/110-degree departures. ► Lateral stick adverse yaw departure.	• Demonstrates in-depth knowledge of NATOPS OCF procedures and prohibited maneuvers. • Correctly enters prescribed syllabus maneuvers per OCF FTI. • Correctly applies recovery control inputs and procedures per OCF FTI.

BEHAVIOR STATEMENT	STANDARDS
30. Formation Takeoff	
• Perform two- and four-ship takeoffs as Wing IAW Formation FTI, to include:	
► Section takeoff.	• Lifts off no earlier than lead and maintains ±15 degrees of parade bearing. • Configures on lead's signal, making smooth, positive control inputs; signals clean at appropriate time.
► Interval takeoff.	• Positions aircraft in appropriate lane of runway ±3 feet, on appropriate bearing line or "banana echelon." • Achieves target interval ±1 second for brake release. • Maintains appropriate lane of runway ±5 feet during takeoff roll. • Smoothly and expeditiously accelerates to appropriate rendezvous speed. • Initiates cross to inside of expected turn within 5 seconds of aircraft clean, but not before interval. • Upon reaching target airspeed, expeditiously puts lead/interval on the horizon. • Accomplishes timely rendezvous maintaining lead on horizon, IAW CV or running rendezvous standards.

BEHAVIOR STATEMENT	STANDARDS
31. Formation Lead	
• Perform two-ship formation as Lead IAW Formation FTI, to include:	• Complies with Formation FTI and course rules, considering airspace and weather to plan maneuvers. • Completes profile in a smooth manner without exceeding wingman's capabilities and without degrading flight safety. • Maintains a smooth, stable platform, avoiding abrupt power changes and maintaining >80% rpm while monitoring -2. • Utilizes proper communications and signals as lead. • Maintains visual awareness of wingman.
► Departure.	• Monitors wingman during initial joinup. • Communicates with ATC to effect joinup as necessary.
► Parade.	• Accomplishes parade maneuvering up to 2 Gs and 45 degrees of bank.
► Lead change.	• Passes lead utilizing appropriate visual/voice/light signals. • Positively maneuvers aircraft to establish wingtip separation -0/+10 feet and step-down ±5 feet, and no further aft than cruise bearing line IAW FTI.
► Breakup and rendezvous.	• Provides stable platform within BAW tolerances.

BEHAVIOR STATEMENT	STANDARDS
32. Formation Wing	
• Perform two- and four-ship formation as the Wingman IAW Formation FTI, to include:	• Complies with Formation FTI. • Effectively passes signals to successive wingmen while smoothly maintaining position.
► Parade/fingertip.	• Maintains parade position IAW FTI: wingtip separation -0/+5 feet, step-down ±5 feet, and bearing line ±10 degrees, using smooth, positive control inputs. • Smoothly and positively corrects back to position within 5 seconds without prompting from IP. • Stacks level with lead ±5 feet and maintains fore/aft references during roll-in, rollout and VFR turn-away position.
► Turns.	• Stacks level with lead/interval ±5 feet. • Maintains fore/aft references during roll-in, turn, and rollout.
► Crossunder/division shuffle.	• Crosses below lead/interval's jet wash (+0 to -20 feet) with constant track crossing rate, achieving target nose/tail clearance no farther aft than one ship length.
► Cruise.	• Rotates around lead's axis prior to crossing inside lead's turn. • Safely and expeditiously stabilizes inside of lead's turn while maintaining situational awareness to all aircraft in flight. • Maintains appropriate lane during reversals. • Smoothly and positively corrects back to position within 5 seconds without prompting from IP.

BEHAVIOR STATEMENT	STANDARDS
32. Formation Wing (continued)	
► Breakup for rendezvous.	• Maintains target airspeed ±5 kts during breakup turn and while in trail. • Rolls out 1,000 ±200 feet in trail of interval.
► CV rendezvous.	• Maintains visual situational awareness to all aircraft ahead, with safe separation from interval. • Expeditiously maneuvers to bearing line. • Maintains a stable plane-of-motion, co-altitude with lead/interval. • Recognizes and makes corrections without prompting to deviations in bearing line, fuselage alignment, and airspeed control while maintaining positive closure. • Controls closure at the in-close position to effect smooth crossunder to echelon.
► Running rendezvous.	• Maintains situational awareness to all aircraft ahead with safe separation and closure to lead/interval.
► TACAN rendezvous.	• Maintains proper step-down ±150 feet below lead's altitude until on bearing line. • Properly utilizes communication to control lead's lighting at night.

BEHAVIOR STATEMENT	STANDARDS
32. Formation Wing (continued)	
► Underrun.	• Recognizes unsafe or excessive parameters and expeditiously initiates maneuver. • Immediately responds to underrun command given by lead or IP. • Day: Expeditiously arrives at perch position as defined in FTI ±50 feet. • Night: Arrives outside lead's turn at 500 feet (±100 feet) below lead's altitude.
► Lead change.	• Refuses or assumes lead within two seconds of initiation, using appropriate visual/voice/light signals. • Maintains target altitude ±100 feet and airspeed ±5 kts while acting as lead. • Passes lead utilizing appropriate visual/voice/light signals. • Positively maneuvers aircraft to establish wingtip separation -0/+10 feet and step-down ±5 feet, and no further aft than cruise bearing line IAW FTI.
33. Formation Approach/Missed Approach	
• Perform two-ship approach procedures while at altitude or under controlling agency as:	
► Section lead.	• Complies with approach procedures and standards being flown. • Lands in center of appropriate side of the runway. • Maintains runway alignment after landing.

BEHAVIOR STATEMENT	STANDARDS
33. Formation Approach/Missed Approach (continued)	
► Section wing.	• Performs landing checklist prior to signaling lead, and signals lead at appropriate time. • Properly manages configuration and energy state to effect safe landing when detached. • Rejoins safely and expeditiously within two miles during touch-and-go/rejoin. • Maintains parade position parameters IAW Formation FTI during missed approach, matching lead's configuration changes via hand or radio signals.
34. Tactical Lead	
• Perform two-ship lead tactical maneuvering.	• Ensures formation remains within assigned airspace. • Executes turns IAW FTI, maintaining or regaining visual contact and mutual support with wingman. • Performs target attacks IAW FTI. • Maintains appropriate flight de-confliction.
35. Tactical Wing	
• Perform two-ship tactical maneuvering, to include the following:	• Maintains position IAW FTI or as briefed. • Accomplishes responsibilities, including clearing, as briefed. • Recognizes and complies with visual signals as briefed/published. • Executes turns IAW FTI to roll out in combat spread; if not in proper position, make timely positive corrections. • Maintains or quickly regains visual contact and mutual support.

BEHAVIOR STATEMENT	STANDARDS
35. Tactical Wing (continued)	
► Defensive combat spread.	● Utilizes appropriate altitude/airspeed excursions to maintain/regain bearing line ±10 degrees, abeam distance .8 to 1.0 nm, with 1,000 feet of step up from lead. ● Regains position within 20 seconds out of turns.
► Offensive combat spread.	● Utilizes appropriate altitude/airspeed excursions to maintain/regain bearing line ±10 degrees, abeam distance 1.2 to 1.7 nm, with 3,000 feet of step up from lead. ● Regains position within 20 seconds out of turns.
► Tactical maneuvering to include: ▪ Check turns. ▪ Cruise turns. ▪ Shackles. ▪ Tac turns. ▪ In-place turns. ▪ Cross turns. ▪ Comm-out turns. ▪ Advanced tacform maneuvering. ▪ Forced cockpit. ▪ Loading.	● Maintains target AOA ±1 unit AOA and airspeed ±10 kts in turns, utilizing appropriate deviations to correct for known position errors.
36. Tactical Rejoin	
● Perform tactical rejoins.	● Expeditiously maneuvers to an appropriate rejoin. ● Maintains positive separation from other flight members throughout the rejoin.

BEHAVIOR STATEMENT	STANDARDS
37. Tail Chase Exercise	
• Perform tail chase exercise per FTI.	• Utilizes proper lead, pure, and lag pursuit to maintain 1,000-1,500 feet in trail of lead. • Maintains a 500-foot bubble from lead at all times.
38. Loose Deuce Exercise	
• Perform loose deuce exercise per TACFORM FTI.	• Executes canned communication drill while maneuvering aircraft IAW TACFORM FTI. • Utilizes high yo-yo, low yo-yo, and displacement roll maneuvering to position aircraft in high and low cover. • Maintains a 500-foot bubble from lead at all times.
39. Gunsight Tracking Exercise	
• Perform gunsight tracking exercise per TACFORM FTI.	• Executes comm IAW TACFORM FTI. • Recognizes attack window and executes offensive break turn to arrive in control zone with angles and closure under control. • Maneuvers aircraft IAW FTI to achieve valid gun employment opportunity.
40. Low-Level Navigation/Procedures	
• Perform low-level procedures, to include: ► Route entry.	• Accomplishes required ATC coordination; visually identifies route entry; complies with all entry time requirements; effectively maneuvers into route structure.

BEHAVIOR STATEMENT	STANDARDS
40. Low-Level Navigation/Procedures (continued)	
► Altitude control.	• Maintains target altitude -0/+200 feet AGL per FLIP AP/1B, unless obstacles or safety dictate otherwise. Avoids abrupt altitude changes. Ensures altitude and obstacle clearance IAW regulatory guidance.
► Time control.	• Maintains awareness of time, using appropriate adjustments to arrive at final checkpoint ±10 seconds of preplanned or amended ETA computed at route entry.
► Course control.	• Maintains planned course ±2 NM. Reaches each checkpoint within a ±2 NM radius. Ensures flight remains within route borders.
► In-flight computation.	• Computes appropriate adjustments to ensure course, time, and altitude standards are achieved.
► Chart interpretation.	• Identifies chart symbols with prominent landmarks along route. Navigates via dead reckoning or waypoint navigation, as applicable.
► Turns.	• Turns to maintain or achieve course control standards; maintains level to slightly climbing; turns IAW briefing/contract, ensures de-confliction with wingman/lead.
► Ridge crossing.	• Executes ridge crossing IAW with briefing and regulations. Maintains briefed altitude (-0 to +300 feet) and above minimum airspeed. Does not exceed maximum bank. • Maintains safe, positive control.
► Route abort/exit.	• IAW FLIP and regulatory guidance; coordinates with ATC; monitors wingman.

BEHAVIOR STATEMENT	STANDARDS
41. BFM/SEM – General	
● BFM/SEM – General.	
► PADS.	● Attains briefed engagement start parameters within the following tolerances: ► Airspeed: ±10 KIAS ► Range: ±0.1 NM ► Altitude: ±200 feet
► Demonstrates CNATRA training rules knowledge and adherence.	● Recognizes and acknowledges pending and current deviations from training rules.
► Reversal mechanics.	● Properly recognizes reversal criteria. Reverses utilizing an unloaded roll, places lift vector onto slightly above bandit and performs a lift limit pull.
► Unload (extension) maneuver.	● Throttle at MRT, unloads to 0 to 0.5 G's.
► Separation maneuver (bug).	● Recognizes meeting separation criteria. ● Applies separation mechanics to deny valid WEZ. ● Maintains sight initially to ensure valid separation.
● Horizontal Scissors.	
► Flats entry.	● Initially applies a lift limit pull, then turns in with flight deconfliction to achieve scissor maneuvering.
► Recovery maneuver.	● Applies appropriate recovery maneuver to achieve a slow-speed, high-AOA, steady maneuver attitude.
► AOA/AS control.	● Applies appropriate lateral/ longitudinal stick and rudder to achieve controlled high-AOA, slow-speed maneuvering.
► Recognition of offensive/defensive position.	● Recognizes offensive or defensive position and applies appropriate reversal timing.

BEHAVIOR STATEMENT	STANDARDS
41. BFM/SEM – General (continued)	
• Horizontal Scissors (continued).	
► Reversal mechanics.	• Applies appropriate lateral/ longitudinal stick and rudder to achieve a controlled reversal at appropriate time.
► Shot opportunity/ mechanics.	• Recognizes the ability to take a shot and applies appropriate maneuver according to position to achieve a valid shot.
► Guns D recognition/ mechanics.	• Recognizes impending gunshot and performs appropriate guns D.
► Fight redefinition.	• Recognizes the requirement to redefine fight and selects appropriate redefinition maneuver.
• Rolling Scissors.	
► Lift vector placement.	• Places lift vector appropriately to maintain position.
► AOA/airspeed control.	• Applies longitudinal stick and throttle to achieve appropriate AOA/airspeed control.
► Flight path projection.	• Recognizes flight path projection to aid in left vector placement and airspeed selection.
► Fight redefinition.	• Recognizes the requirement to redefine fight and selects appropriated redefinition maneuver.
• Snap-Shot Drill (Offensive).	
► Achieves valid parameters for a valid snap (nonmaneuvering).	• Solves for: ► Plane of motion. ► Range. ► Lead.
► Counter to defender’s guns defense.	• Recognizes defender’s maneuver and timely selects and applies countermaneuver to achieve a valid snap.

BEHAVIOR STATEMENT	STANDARDS
41. BFM/SEM – General (continued)	
• Snap-Shot Drill (Defensive). ► Maintain parameters as defender. ► Guns defense.	• Utilizes G to maintain shooter at the 2/10 o'clock position. • Timely performs guns defense to defeat shooter's snap shot.
42. BFM – Offensive	
• AWE recognition/ timing. • Offensive break turn. • Energy management. • Fight redefinition recognition and follow. • LAR/shot opportunity recognition. • Valid shots.	• Recognizes AW and performs OBT upon AW entry. • OBT mechanics: ► Rolls to place lift vector onto slightly below bandit. ► Performs maximum performance pull. • Utilizes G to maintain airspeed. • Performs energy excursion when appropriate. • Recognizes that the fight has been redefined. • Flies to bandit's point of departure. • Timely rolls to align fuselages and performs appropriate performance pull to deny bandit angles. • Recognizes LAR and performs energy excursion to take a shot. • Performs valid shots according to criteria.
43. BFM – Defensive	
• Defensive break turn. • AWE timing recognition.	• DBT mechanics: ► Rolls to place lift vector onto slightly below bandit. ► Performs maximum performance pull. • Recognizes AWE timing and performs appropriate countermaneuver for early, late, or timely bandit entry.

BEHAVIOR STATEMENT	STANDARDS
43. BFM – Defensive (continued)	
• Energy management.	• Utilizes G to maintain airspeed. • Performs energy excursion when appropriate.
• Fight redefinition recognition and selection.	• Recognizes the requirement to redefine fight. • Selects redefinition maneuver appropriate for the situation. • Performs redefinition applying appropriate mechanics.
• WEZ recognition.	• Recognizes a pending WEZ and applies appropriate DBFM mechanics to deny shot.
44. BFM – Neutral/High Aspect	
• Recognizes flow.	• Recognizes type of flow: ► 1-circle. ► 2-circle. ► Roller. ► Flats.
• Fights appropriate fight.	• Applies HA BFM basics (tools) to achieve HA BFM objectives.
45. Section Engaged Maneuvering	
• SEM Setups, to include: ► No switch. ► Multi-switch. ► Abeam. ► BVR/Tap-the-CAP.	• Attains briefed engagement start parameters. • Obtains turning room as bandit maneuvering permits. • Maintains visual/tally/situational awareness. Quickly regains tally on the bandit, visual on lead.
• Mutual support/ engaged communication.	• Uses correct, concise, and effective comms to the maximum extent possible to increase situational awareness.

BEHAVIOR STATEMENT	STANDARDS
45. Section Engaged Maneuvering (continued)	
• Engaged maneuvering.	• Recognition of threat and own aircraft weapons parameters. • Detects adversary by the merge, maintains visual and tally, and maintains required role responsibilities for visual de-confliction throughout the fight. • Proper threat reaction in a timely manner if defensive, employing IRCM. If not immediately defensive, performs actions in an engaged or supporting role. Ensures de-confliction responsibilities at all times when appropriate. • Adheres to FTI separation of aircraft. • Maintains briefed altitude de-confliction block.
• Weapons employment.	• Properly IDs adversary and employs weapons with appropriate weapons de-confliction. • Recognizes a LAR and selects the correct weapon to employ a valid shot attempt.
46. Sight/Lookout Doctrine	
• Maintain an effective visual lookout doctrine in a single-ship environment.	• Demonstrates awareness of potential ground or airborne hazards. • Positively responds to and maneuvers to avoid observed flight hazards.
• Maintain an effective lookout doctrine in a multi-plane environment.	• Maintains or expeditiously gains/regains visual contact of lead/adversary/wing through lookout or communications.

BEHAVIOR STATEMENT	STANDARDS
47. Aggressiveness	
• Demonstrate a safe but aggressive posture in a tactical environment.	• Understand particular situation and apply appropriate aggressiveness to achieve/deny shots while demonstrating the capability to instantly respond to safety of flight situations.
48. Energy Management	
• Attain or maintain proper aircraft energy state for a given tactical situation.	• Demonstrates knowledge and understanding of T-45 EM diagram. • Effectively utilizes control and throttle movements to gain/sustain best performance available for a given tactical situation. • Correctly maneuvers to maintain or change energy state based on one-circle or two-circle engagements.
49. Strike Maneuvering	
• Maneuver own ship within a section or division in an air-to-ground environment into a position from where ordnance or sim ordnance can be safety delivered.	• Flies all maneuvers IAW FTI or applicable stage lecture. • Ordnance or simulated ordnance deliveries within TAC ABORT criteria. • Complies with and adheres to target de-confliction procedures and contracts.
• Mach run.	• Maintains FTI double-cruise interval parade positioning +0/-10 deg bearing. • Makes proper trim inputs to maintain balanced flight prior to pattern entry.
• Weapons Patterns to include: ▶ 30-degree bombs. ▶ 20-degree bombs. ▶ 10-degree bombs. ▶ 10-degree strafe/rockets. ▶ 30-30 pop bombs.	• Establishes correct pattern and roll-in parameters IAW Weapons FTI within the following tolerances: ▶ Airspeed: ±10 KCAS. ▶ Abeam distance: ±.2 DME. ▶ Pattern altitude: ±200 feet. ▶ 30-30 pop pattern altitude: ±200 feet. ▶ 30-30 pop run in altitude: ±100 feet.

BEHAVIOR STATEMENT	STANDARDS
49. Strike Maneuvering (continued)	
• Roll-in.	• Utilizes appropriate AOB, application of G, and AOA to arrive at pre-planned dive angle for a specified delivery pattern.
• Tracking/dive angle.	• Roll-in altitude: ±200 feet. • Attack Cone Distance: ±.2 DME. • Maintains within ±15 degrees of planned run-in heading. • Maintains within ±5 degrees of target dive angle.
• Error corrections.	• Executes error sensitivity techniques for deviations from the planned release parameters.
• Release/firing parameters.	• Ordnance release parameters within the following tolerance: ► Airspeed: ±20 KCAS ► Dive Angle: ±3 degrees for 30/20 degree dive delivery. ±2 degrees for 10 degree dive delivery. ► Altitude: -300 to +300 feet for 30-degree dive delivery. -200 to +200 feet for 20/10 degree dive delivery.
• Accuracy.	• Maintains 76-150 foot CEP.
• Dive recovery.	• Executes proper off target procedures IAW FTI or applicable stage lecture to arrive within parameters of the abeam position following a delivery profile. • Promptly recognizes recovery altitude and smoothly maneuvers to avoid low/rolling pullout or overstress.

BEHAVIOR STATEMENT	STANDARDS
49. Strike Maneuvering (continued)	
• Pattern interval.	• Maintains pattern altitude with visual contact with interval, or remains at sanctuary pattern altitude until visual contact is regained. Maintains proper position in pattern and elevates to target pattern altitude once interval is in sight.
50. Off-Target Rendezvous	
• Perform hi-angle off rejoin overhead target area IAW Weapons FTI.	• Maintains sanctuary altitude until all preceding aircraft are in sight with fuselage alignment and appropriate airspeed for rejoin.
• Hung ordnance checks.	• Executes visual inspection for unexpended ordnance as well as an integrity check of other flight members.
• Hung ordnance approach.	• Executes proper hung ordnance procedures IAW FTI or flight brief.
51. CVN Operations	
• Safely operate T-45 in and around aircraft carrier.	• Properly controls and maneuvers aircraft IAW T-45 NATOPS, CV NATOPS, and FTI procedures.
52. LSO-Controlled Landing	
• Perform graded carrier landing under LSO control to field carrier box or CV landing area, to include following:	
► CV pattern.	• Executes FCLP or CV pattern entry from takeoff or catapult launch IAW CV NATOPS and FTI. • Maintains pattern altitude on downwind ±50 feet. • Makes appropriate crosswind correction on downwind to arrive at proper abeam distance.

BEHAVIOR STATEMENT	STANDARDS
52. LSO-Controlled Landing (continued)	
► CV pattern (continued).	• Initiates approach turn w/appropriate extension off abeam to achieve proper groove length. • Manages energy state and makes timely corrections to deviations around approach turn without assistance.
► Start position.	• Intercepts acceptable glideslope, centerline and groove length without LSO assistance.
► AOA control.	• Maintains on speed with only minor deviations.
► Glideslope control.	• Maintains glidepath with average deviations and corrections without LSO assistance.
► Power control.	• Controls throttle movements for proper correction of glidepath deviations without LSO assistance.
► Lineup control.	• Intercepts and tracks centerline with average deviations and corrections without LSO assistance.
► Error detection/ correction.	• Detects and corrects in a timely manner deviations in glidepath, lineup, and AOA without assistance.
► Response to LSO calls.	• Responds in a safe and timely manner to glidepath, power, attitude, lineup and waveoff calls from LSO.
► Bolter/Touch-and-Go Technique.	• Simultaneously moves throttle to MRT, while retracting speed brakes and rotates to optimum AOA immediately upon touchdown and without LSO assistance.
► Waveoff Technique.	• Immediately executes waveoff procedures when required or directed.

Chapter X

Master Materials List

1. Individually Issued Materials

	TITLE	IDENTIFICATION	QTY PER STUDENT	COST EACH
a.	T-45 Combined MPTS Flight Training Curriculum	CNATRAINST 1542.167	1	$7.42
b.	Flight Training Instructions (FTI)	CNATRA PAT PUB P-1204 through P-1289 as applicable	9	2.42
c.	DOD FLIP Publications			
	(1) Enroute IFR Supplement U.S.		3	1.25
	(2) Enroute High Altitude Chart (H1, H2)		6	.60
	(3) Terminal High Altitude Instrument Approach Procedures (NW, NE, SW, SE)		8	1.25
d.	Single-Engine Jet Log	CNATRA-GEN 3760/1	25	.78
e.	TRAWING In-Flight guide	Locally produced/issued		
f.	Aviation Training Jacket	CNATRA-GEN 1542/10A	1	.11
g.	Pilot Training Summary	CNATRA 1542/95	1	.005
h.	Jacket Review	CNATRA-GEN 1542/66	1	.005
i.	Military Flight Plan	DD-175	20	.005
j.	9mm NATO Ball ammunition		150rds	.13

TITLE	IDENTIFICATION	QTY PER STUDENT	COST EACH
k. Academic Lesson Guides		1	
(1) Aviation Student Indoc (ASI)	CNATRA P-1277		
(2) Aerodynamics (AERO)	CNATRA P-1279	1	
(3) Engineering (ENG) Book 1 & 2	CNATRA P-1278	1	
(4) Instrument Navigation (INAV)	CNATRA P-1282	1	
(5) Meteorology (METRO)	CNATRA P-1280	1	
(6) Operational Navigation (ONAV)	CNATRA P-1224	1	
(7) Instrument Rating Flight Procedures	CNATRA P-1245	1	

2. Support Materials

	TITLE	IDENTIFICATION	QUANTITY	COST EACH
a.	T-45C NATOPS Flight Manual	NAVAIR A1-T45AC-NFM-000	255	$17.50
b.	T-45A NATOPS Flight Manual	A1-745AB-NFM-000	125	17.50
c.	T-45C Pocket Checklist	NAVAIR A1-T45AC-NFM-500	255	2.65
d.	T-45C NATOPS Flight Manual (performance charts)	NAVAIR A1-T45AC-NFM-300	255	2.65
e.	NATOPS Instrument Flight Manual	Stock No. 0437LP9001019	50	11.50
f.	NATOPS General Operating Instruction	OPNAVINST 3719.7	25	11.50
g.	Aeronautical Information Manual (AIM)	FAA Publication	100	12.50
h.	Flight Clothing	(Identification and quantity listed in CNATRAINST 10126.1; cost listed in NAVSUP PUB. 4100.)		
i.	Aviation Training Forms are generated by the Training Integration Management System (TIMS).			
j.	T-45C Standard Operating Procedures (SOP)	COMTRAWINGONEINST 3710.7 (Locally produced/issued)	1	
k.	Lecture Guides	CNATRA PAT PUBS	18	

3. Aircraft and Major Training Devices

	TITLE	IDENTIFICATION
a.	Aircraft	T-45C
b.	Instrument Flight Trainer (IFT) Non-visual Simulator	Device 2F137
c.	Operational Flight Trainer (OFT) Visual Simulator	Device 2F138C, D, or E