

NAVAL AIR TRAINING COMMAND



NAS CORPUS CHRISTI, TEXAS  
CIN Q-2A-0176, Q-2A-1176

CNATRAINST 1542.176  
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# CHIEF OF NAVAL AIR TRAINING



## T-45 E-2/C-2 ADVANCED FLIGHT TRAINING CURRICULUM

2014





DEPARTMENT OF THE NAVY  
CHIEF OF NAVAL AIR TRAINING  
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CNATRA INSTRUCTION 1542.176

Subj: T-45 E-2/C-2 ADVANCED FLIGHT TRAINING CURRICULUM

1. Purpose. To publish the curriculum for training Student Military Aviators (SMA) in the Advanced E-2/C-2 phase of training.
2. Cancellation. The Intermediate E-2/C-2 portion of CNATRINST 1542.167 CH-2 will be canceled when the last student enrolled completes the curriculum.
3. Action. This instruction is effective on receipt. No changes will be made without the written authorization by the Chief of Naval Air Training (CNATRA).
4. Forms. The CNATRA forms required by this instruction are automated in the Training Integration Management System (TIMS) computer program. Additional CNATRA forms are available on the CNATRA website <https://www.cnatra.navy.mil/pubs/forms.htm>.

  
D. M. EDGECOMB  
Chief of Staff

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COURSE DATA

1. Course Title. T-45 E-2/C-2 Advanced Flight Training Curriculum.
2. Course ID Number (CIN). Q-2A-0176 (TW-1) and Q-2A-1176 (TW-2).
3. Location(s). Naval Air Station Meridian, Mississippi, and Naval Air Station Kingsville, Texas.
4. Course Status. Active.
5. Course Mission. T-45 E-2/C-2 Advanced Flight Training Curriculum is designed to provide commissioned officers in the U.S. Navy and selected foreign nationals with further training in areas associated with visual and instrument conditions and to develop airmanship skills prerequisite for transition to operational fleet aircraft and carrier-based environments.
6. Prerequisite Training. Successful completion of Intermediate E-2/C-2 Multi-Service Pilot Training System (MPTS) Curriculum: Q-2A-0175.
7. Security Clearance Requirements. None.
8. Follow-on Training. Designated Fleet Replacement Squadron.
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 standdowns, and other expected nonworking days throughout the year.

	<u>Training Days</u>	<u>Calendar Weeks</u>
TW-1 Advanced E-2/C-2:	151.8	33.7
TW-2 Advanced E-2/C-2:	153.8	34.1

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

<b>ADVANCED E-2/C-2 GROUND TRAINING</b>		
<b>Stage</b>	<b>Symbol</b>	<b>Hours</b>
Aviation Student Indoctrination	ASI01	7.7
Engineering	ENG01	33.2
Aerodynamics	AER01	6.0
Meteorology	MET01	4.0
Instrument Navigation	NAV01	10.1
<b>Total</b>		<b>61.0</b>

b. Flight Support

<b>ADVANCED E-2/C-2 FLIGHT SUPPORT</b>		
<b>Stage</b>	<b>Symbol</b>	<b>Hours</b>
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	1.0
Course Rules	CR12	3.0
Familiarization Flight Procedures	FAM11	8.5
Out-of-Control Flight (OCF) Procedures	OCF11	2.0
NATOPS	NA11	6.0
Night Familiarization Flight Procedures	NFM11	3.5
Basic Instrument Flight Procedures	BI11	10.5
Radio Instrument Flight Procedures	RI11	8.5
Airways Navigation Flight Procedures	AN11	2.0
Instrument Rating Flight Procedures	IR11	4.0
Section Formation Flight Procedures	FRM11	5.5
Division Formation Flight Procedures	DIV11	2.5
Night Formation Flight Procedures	NFR11	2.2
Field Carrier Landing Flight Procedures	FCL11	2.5
Carrier Qualification Landing Flight Procedures	CQL11	6.0
<b>Total</b>		<b>96.5</b>

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

ADVANCED E-2/C-2								
Flight/Events	IFT*		OFT		T-45C			
	Flts	Hrs	Flts	Hrs	Dual		Solo	
					Flts	Hrs	Flts	Hrs
CO	4	6.0						
EMFP	4	5.2						
BI	9	13.5			3	4.5		
RI	3	4.5	5	7.5	4	6.4		
AN			7	10.3	4	6.4		
FAM			10	15.0	14	15.5	1	1.2
OCF			1	1.5	1	0.5		
FRM			4	5.8	9	13.3	2	2.7
DIV					4	6.0	1	1.4
NFM			2	2.4	3	3.8	1	1.3
IR	1	1.5	3	4.5	3	4.8		
FCL			2	2.8	2	1.4	6	3.6
NFR			2	2.4	2	3.0	1	1.3
CQL			3	4.3	1	0.7	13	11.4
<b>Totals</b>	<b>21</b>	<b>30.7</b>	<b>39</b>	<b>56.5</b>	<b>50</b>	<b>66.3</b>	<b>25</b>	<b>22.9</b>

\* IFT only at Naval Air Station Meridian. Any IFT event may be flown in OFT.

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	Debrief	Total
Simulator/CPT	0.50	0.5	1.00
Flight	1.75	1.0	2.75
(all except the following):			
BI4101, FAM4101, FRM4101	2.00	1.0	3.00

17. Physical Requirements. As specified in the Manual of the 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, simulators, and in-flight instruction.

20. Preceding Curriculum Data. This curriculum replaces CNATRAINST 1542.167 Ch-2 for selected E-2/C-2 Student Naval Aviators (SNA).

21. Student Performance Measurement/Application of Standards. The standards outlined in Chapter IX, Course Training Standards, are used to evaluate 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.

22. Summary of Lead/Chase Overhead. The summary of the Instructor Lead/Chase planning factor hours for the T-45 Advanced E-2/C-2 Curriculum 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.

<b>ADVANCED E-2/C-2</b>				
<b>Flight/Event</b>	<b># Events</b>	<b>Lead/Chase Hrs/Event</b>	<b># of Students per Chase</b>	<b>Hrs/Student</b>
FRM41	6	1.3	1	7.20
FRM42	1	1.2	1	1.10
FRM43	1	1.3	1	1.30
FRM44	3/1	1.2	1	4.70
FRM45	1	1.1	1	1.10
DIV41	4	1.3	2	2.60
DIV42	1	1.3	2	0.60
NFM42	1	1.1	2	0.55
NFR41	2	1.3	1	2.40
NFR42	1	1.1	1	1.10
CQL44	1	4.2	6/4	2.80
<b>Totals</b>	<b>22</b>	<b>N/A</b>	<b>19/17</b>	<b>25.45</b>

Note: Lead/Chase Hours per Event are approximate and are derived by subtracting 0.2 hours from the student event length. This accounts for student touch-and-goes.

ABBREVIATIONS

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

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
BTX	-	Blown Tire Exercise
CAI	-	Computer-Assisted Instruction
CCC	-	Course Curriculum Coordinator
CDI	-	Course Deviation Indicator
CNI	-	Communication, Navigation, and Identification
CO	-	Commanding Officer
CONTR AUG	-	Control Augmentation
CQL	-	Carrier Qualification Landing
CRM	-	Crew Resource Management
CTS	-	Course Training Standard
CV	-	Carrier
CWS	-	Centralized Warning System
DEU	-	Display Electronics Unit
DME	-	Distance Measuring Equipment
DP	-	Departure Procedure (Instrument)

DR	-	Dead Reckoning
ECA	-	Engine Control Amplifier
ECS	-	Environmental 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
FLOLS	-	Fresnel Lens Optical Landing System
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
H	-	Hooded
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
LECT	-	Lecture
LOC	-	Localizer
LP	-	Low Pressure
LSO	-	Landing Signal Officer
MFD	-	Multifunction Display
MIF	-	Maneuver Item File
MIL	-	Mediated Interactive Lecture
MPTS	-	Multi-Service Pilot Training System
NACES	-	Navy Aircrew Common Ejection Seat
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

OFT	-	Operational Flight Trainer (2F138 - visual)
OLS	-	Optical Landing System
OPS	-	Operations
P/P	-	Partial Panel; Non-CAI Administered Examination (paper/pencil)
PA	-	Precautionary Approach
PAR	-	Precision Approach Radar
PAS	-	Phase Aggregate Score
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.
RRU	-	Ready Room UNSAT
RTB	-	Return to Base
S/B	-	Speed Brakes
SA	-	Situational Awareness
SAR	-	Search and Rescue
SIF	-	Selected Identification Features
Sim	-	Simulator
SMS	-	Student Monitoring Status
SNA	-	Student Naval Aviator (includes IMS)
Solo	-	Flight 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

- UNSAT - Unsatisfactory
- VASI - Visual Approach Slope Indicator
- VFR - Visual Flight Rules
- VHF - Very High Frequency
- VMC - Visual Meteorological Conditions
- VOR - VHF Omnidirectional Range
- WKBK - Workbook
- WU - Warmup
- Wx - Weather

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GLOSSARY

1. Advancing X. Completed event within the normal syllabus flow. Excludes events with last characters in the range 84-89.
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 cards, 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. Blue ATF. A standard or supplemental ATF that is printed on blue paper. The blue ATF is used to denote a Marginal event and the blue supplemental ATF is used to track students on SMS.
7. Check Ride (SXX90). A flight check in any stage of training.
8. Class Advisor Program. An Instructor Pilot assigned to provide counseling and guidance to a specific student pilot or pilots throughout the applicable syllabus.
9. Course of Training. The entire program of preflight, flight, simulation, academics, and officer development conducted in all media during the programmed training days.
10. Course Training Standard (CTS). A description of required behaviors and standards of performance for a specific maneuver. These standards are in Chapter IX.

11. 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.

12. 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.

13. Deliverables. A CNATRA 1542/1827 TRB Summary Form generated by the TRB which 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 1542.176 and IAW CNATRAINST 1500.4H.

14. 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. If the EOB flight is a Safe-for-Solo flight, the IP must be designated as an "X" on the FIST.

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

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

17. Final Progress Check (SXX89). Any progress check given following an IPC in phase, for poor performance or as directed by the CO.

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

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

20. Initial Progress Check (SXX88). First progress check given in phase. Only one IPC is allowed per phase of training.

21. 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																								
1 <sup>st</sup> 3 <sup>rd</sup>	Stage	<table border="0"> <tr> <td>AER—Aerodynamics</td> <td>FAM—Familiarization</td> </tr> <tr> <td>AN—Airways Navigation</td> <td>FCL—Field Carrier Landing</td> </tr> <tr> <td>ASI—Aviation Student Indoctrination</td> <td>FRM—Formation</td> </tr> <tr> <td>BI—Basic Instruments</td> <td>IR—Instrument Rating</td> </tr> <tr> <td>CO—Cockpit Orientation</td> <td>MET—Meteorology</td> </tr> <tr> <td>CR—Course Rules</td> <td>NA—NATOPS</td> </tr> <tr> <td>CRM—Crew Resource Management</td> <td>NFM—Night Familiarization</td> </tr> <tr> <td>CQL—Carrier Qualification Landing</td> <td>NFR—Night Formation</td> </tr> <tr> <td>DIV—Division Formation</td> <td>OCF—Out-of-Control Flight</td> </tr> <tr> <td>ENG—Engineering</td> <td>ORM—Operational Resource Management</td> </tr> <tr> <td>EP—Emergency Procedures</td> <td>RI—Radio Instruments</td> </tr> <tr> <td></td> <td>SEA—Seat</td> </tr> </table>	AER—Aerodynamics	FAM—Familiarization	AN—Airways Navigation	FCL—Field Carrier Landing	ASI—Aviation Student Indoctrination	FRM—Formation	BI—Basic Instruments	IR—Instrument Rating	CO—Cockpit Orientation	MET—Meteorology	CR—Course Rules	NA—NATOPS	CRM—Crew Resource Management	NFM—Night Familiarization	CQL—Carrier Qualification Landing	NFR—Night Formation	DIV—Division Formation	OCF—Out-of-Control Flight	ENG—Engineering	ORM—Operational Resource Management	EP—Emergency Procedures	RI—Radio Instruments		SEA—Seat
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5 <sup>th</sup>	Block	Sequential, indicating block within stage.																								
6 <sup>th</sup> & 7 <sup>th</sup>	Event/ Check Identifier	<p>Sequential, indicating event within block, or other event types as shown below:</p> <table border="0"> <tr> <td>84—Adaptation</td> <td>88—Initial Progress Check</td> </tr> <tr> <td>85—Practice Sim</td> <td></td> </tr> <tr> <td>86—Warmup</td> <td>89—Final Progress Check</td> </tr> <tr> <td>87—Extra Training</td> <td>90—Check Ride/Exam</td> </tr> </table>	84—Adaptation	88—Initial Progress Check	85—Practice Sim		86—Warmup	89—Final Progress Check	87—Extra Training	90—Check Ride/Exam																
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22. Maneuver Item File. A listing of required maneuvers and associated proficiency levels for each block of training.

23. Master Syllabus. Chapters I-VIII list all training syllabus activities, prerequisites, and desired training flow for T-45 E-2/C-2 Advanced Flight Training Curriculum.
24. Off-Wing Flight. A Day Familiarization flight not flown with the student's on-wing.
25. On-Wing. One of two primary instructors assigned to prepare a student in the Familiarization stage IAW CNATRAINST 1500.4H.
26. Outcomes. Potential courses of action following a Progress Check. There are only two basic outcomes:
- a. Pass - Return to training.
  - b. Fail (IPC) - Results in FPC.
  - c. Fail (FPC) - Proceed with the attrition process/attrite.
27. Phase of Training. A phase consists of a major division in the course of training. T-45 E-2/C-2 Advanced Flight Training Curriculum consists of a single phase of training; upon completion of the Advanced E-2/C-2 phase, students will be assigned to the appropriate Fleet Replacement Squadron.
28. Pink ATF. A standard ATF that is printed on pink paper. The pink ATF is used to denote an UNSAT event generating a progress check.
29. Progress Check Pilot. An instructor pilot authorized to administer Initial or Final Progress Checks.
30. Ready Room UNSAT (RRU). An UNSAT grade given for inadequate knowledge of flight procedures, systems, discuss items, emergency procedures, deficient preflight planning, or failure of a non-academic examination (e.g., NATOPS quiz/exam). Missing a brief does not constitute an RRU and shall be documented on a supplemental ATF (also, see paragraph 714, CNATRAINST 1500.4H).
31. 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.

32. Shotgunned. Solo flights flown with an IP Safety Observer for weather requirements.

33. Special Syllabus Requirement. A one-time, ungraded demonstration item(s) or other special requirement requiring documentation.

34. Stage of Training. A stage consists of all training of a particular type (Engineering, Familiarization, 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 xxi for a complete listing of all stages in the T-45 E-2/C-2 Advanced Flight Training Curriculum.

35. Student Monitoring Status. Squadron-initiated, focused supervisory attention on an SNA's progress in training to address performance deficiencies and assess the SNA's potential to complete the program. It may also be applied to SNAs who require supervisory attention while attempting to resolve personal issues.

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

37. Training Media. T-45 E-2/C-2 Advanced Flight Training Curriculum 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), CAI lessons, and exams.

38. Training Review Board. A fact-finding board appointed to conduct an administrative review of training following a failed FPC.

a. The TRB shall consider the quality of training provided, continuity of training provided, outside influences, and extenuating circumstances.

b. The TRB shall not make recommendations based on perceived NFS potential or aspects unrelated to the administrative application of the NFS's training.

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

40. Yellow ATF. A standard ATF that is printed on yellow paper. The yellow ATF is used to denote an UNSAT event that does not generate a progress check.

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 a specific course of action appears to conflict with other directives, consult CNATRA (N71).

c. Deviations. Document all deviations on the event's ATF or a supplemental ATF if found after the event.

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

e. Execution

(1) Students will execute all the events listed in the E-2/C-2 Advanced Flight Training Curriculum.

(2) All flights shall be flown from the front cockpit unless otherwise delineated.

(3) All multiplane flights shall have a dedicated IP Lead unless otherwise noted.

f. Syllabus Description. The T-45 E-2/C-2 Advanced Flight Training Curriculum consists of a single phase of training for E-2/C-2 undergraduate flight training for USN and IMS students. This phase of training shall be 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 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.

(2) MPTS SNA Calculations. See CNATRAINST 1500.4H.

(3) NSS Calculation. The following blocks/events will not count toward NSS calculation unless overall grade is UNSAT:

OCF31XX	OCF41XX	FCL31XX	FCL43XX	CO31XX	CO32XX
CQL21XX	CQL31XX	CQL42XX			

## 2. Training Management

### a. Syllabus Progression

(1) Other than noted exceptions, syllabus events shall be flown sequentially within each stage. Blocks shall not be started without all prerequisites completed. Students must complete all events in the E-2/C-2 Advanced phase of training.

(2) 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. The flowcharts on pages I-4, I-5, and I-7 delineate the sequence of events and their ground training prerequisites except as listed in paragraph 2b. System training management is designed to facilitate up to two graded events (flight, simulator, exam, or combination thereof) per student per day.

(3) First event in stage must be completed within two weeks of the associated flight support lecture.

(4) First event in stage cannot be completed the same day as the associated flight support lecture.

b. Training Acceleration Program (TAP). Under exceptional circumstances, a student's previous flight experience may warrant accelerated progression. The Squadron CO may advance the student to the next block of instruction when all EOB MIF requirements are met for the current block of instruction. If Accelerated Progression is utilized, affected students shall fly a minimum of one of each of the critical items within block and must meet EOB MIF for all critical items and optional items

attempted. This policy shall not be used to meet squadron production goals, it is strictly for the rare instances where the student's demonstrated proficiency makes completion of all events within a block of instruction unnecessary. Pipeline reassignment of fleet aviators from other communities may warrant acceleration through instrument stages based on previous instrument training. All records for the accelerated student, including the 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 1500.4H." If the SNA's performance suffers due to participation in TAP, the SNA shall join a regular class.

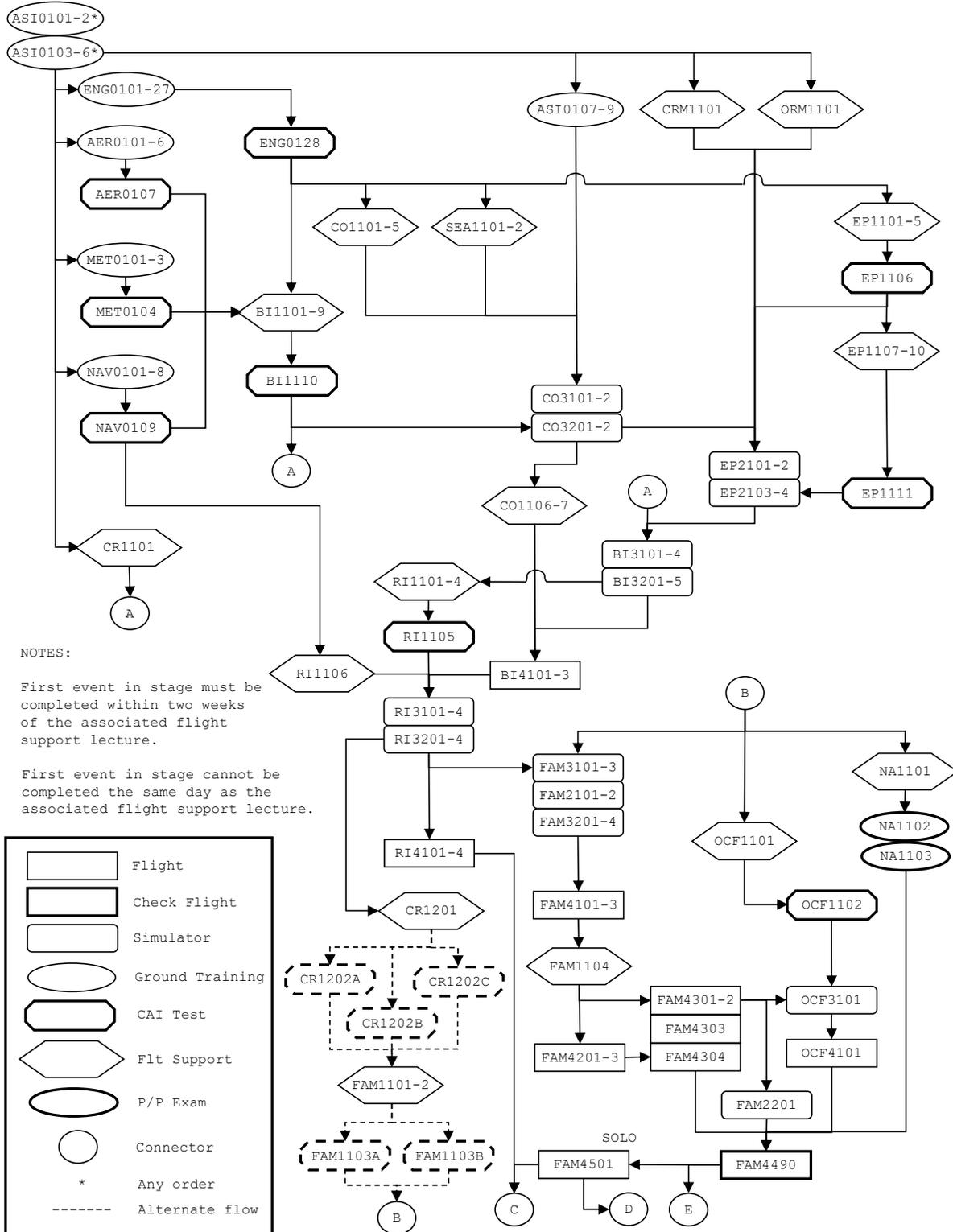
c. Maneuver Continuity. Students must accomplish previously introduced maneuvers frequently enough to ensure required proficiency is maintained.

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 the ATF's general comments section.

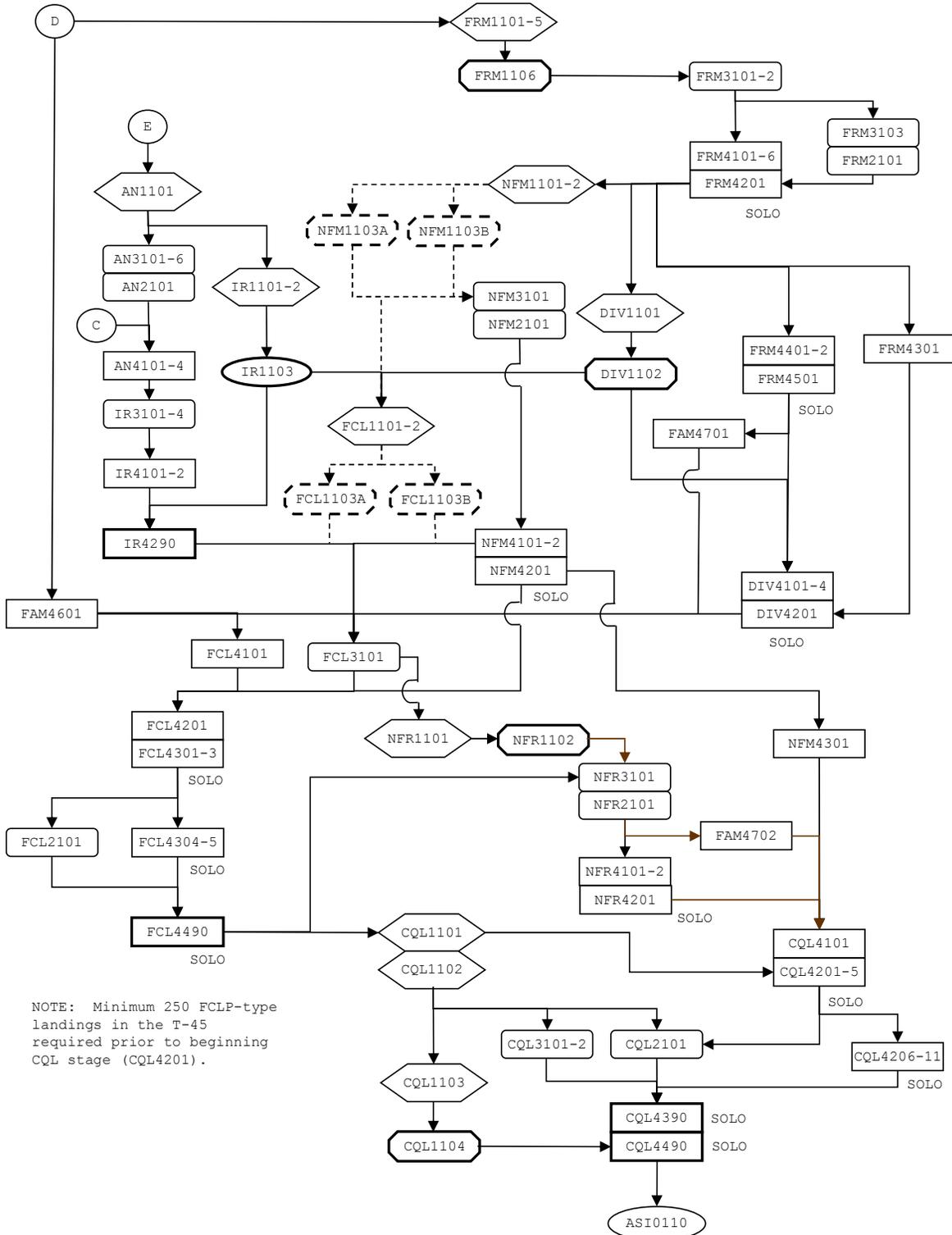
e. Special Syllabus Requirements. The SSRs are allocated to blocks. Unless noted otherwise, IPs may accomplish SSRs on any flight within the block. The SSRs shall be completed in the specified block. Document date of exposure for each SSR via the SSR button on the ATF menu bar. Assign NG/1 as the SSR maneuver grade and write a comment noting which SSR was completed on the event.

f. Aviation Training Jacket Reviews. The Class Advisor (CA) or other qualified flight instructor shall conduct jacket reviews at least weekly. Additionally, SMS students require weekly ATJ reviews from the Student Control Officer.

ADVANCED E-2/C-2 COMPLETE COURSE FLOW (PART 1)



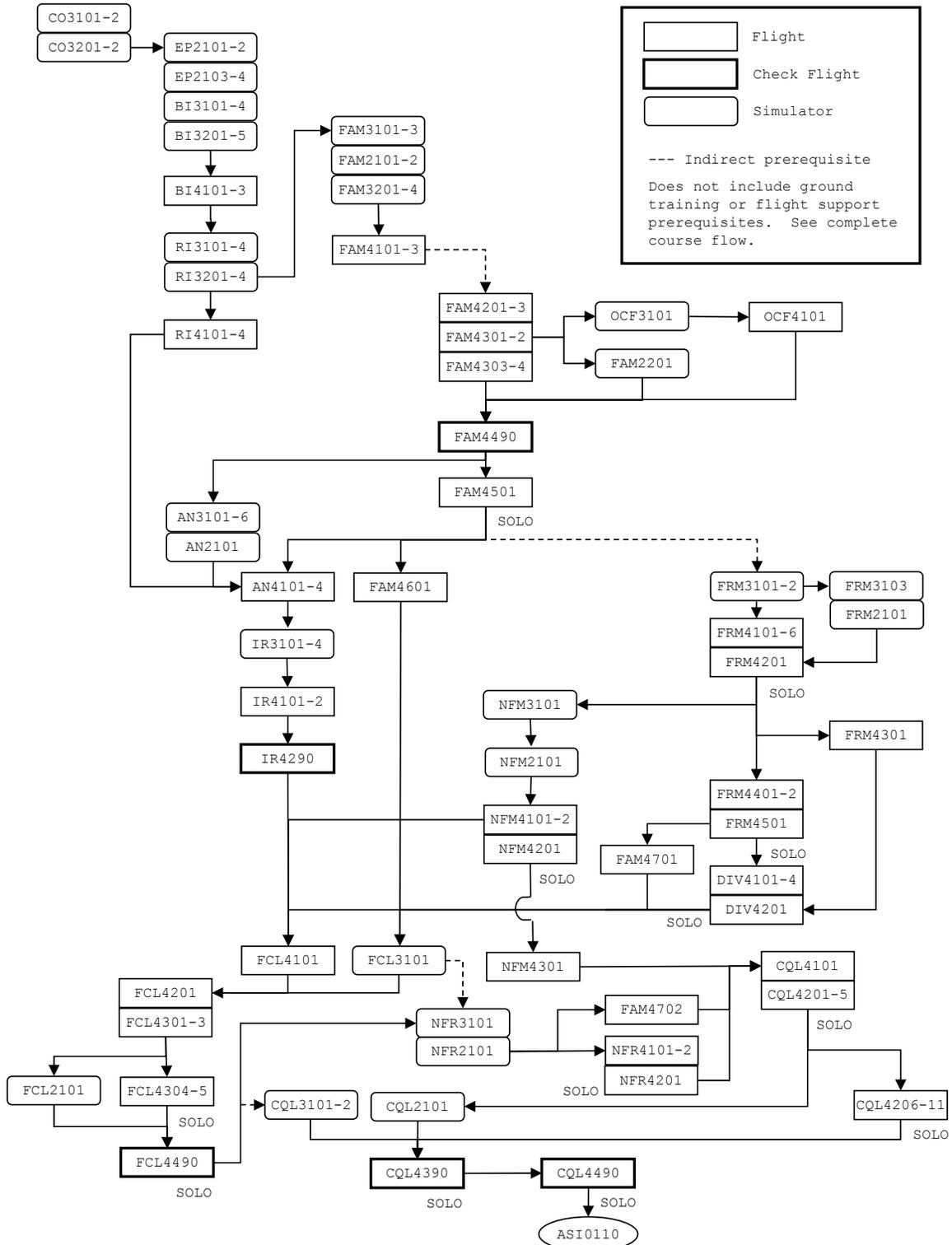
ADVANCED E-2/C-2 COMPLETE COURSE FLOW (PART 2)



CNATRAINST 1542.176  
6 Nov 2014

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**ADVANCED E-2/C-2 FLIGHT/DEVICE FLOW**



3. UNSAT Performance. (See also **Progress Check Procedures**, Chapter I, paragraph 10.c.(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** UNSAT or third **cumulative** UNSAT in block.

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

(3) An UNSAT check flight (SXX90), two consecutive UNSATs in block, three cumulative UNSATs (in the same block), four total UNSATs in phase, or RRU result in a Progress Check. Document the failed check flight or second consecutive/third (in block) cumulative UNSAT on a pink ATF for that syllabus event.

(4) UNSAT 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. A third attempt at CQL4490 requires a waiver from CNATRA (see CNATRAINST 3740.9E).

b. Ready Room UNSAT (RRU). An RRU is defined as either of the following:

(1) An SNA is inadequately prepared for the scheduled event. The RRU shall be documented on a pink version of the event's ATF. The event will be marked as incomplete with a U/2 grade for "General Knowledge/Procedures." Upon completion of the progress check, the event shall be flown to completion and general knowledge and emergency procedures shall be incorporated into the overall grading solution.

(2) The SNA fails a nonacademic examination (e.g., NATOPS quiz).

(3) For purposes of determining when IPCs or FPCs are required, RRUs and UNSAT flight/simulator events all contribute to the same IPC/FPC process; each SNA may only have one IPC per phase of training.

c. Academic. Two academic examination failures in a phase trigger an FPC. The FPC shall be completed prior to retake.

d. Remediation. A ground evaluation emphasizing the deficient areas may clear an UNSAT check flight or EOB syllabus event caused solely by ground operations.

e. Restrictions. Until remediation events are completed:

(1) The student shall not fly solo, except in the case of FCL/CQL stages with LSO and CO approval.

(2) The student will not accomplish training in any other stage. In the case of CQL: upon completion of the progress check, training may be continued in other stages until the next workup cycle begins for the CQL remediation flights. The progress check may not require an actual flight to gather the information needed to make a fully informed return-to-training decision.

(a) Example: if an Advanced Strike student triggers an IPC by disqualifying at the aircraft carrier (UNSAT CQL4490), the IPC Instructor may not require a flight in the landing pattern to determine if the student has the potential to complete; he/she may be able to gather much of the required information through an ATJ review and discussion with the Landing Signal Officer, focusing on landing performance and the shortcomings demonstrated on the CQL4490.

(b) If an IPC is conducted in this manner, the IPC Instructor shall not make his/her determination until they have completed a thorough interview with the student. An IPC conducted in this manner shall be fully documented on a Supplementary ATF, including all required IPC counseling.

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

4. Training Review Board. The TRAWING shall conduct a TRB on all NFSs recommended for attrition.

a. The TRB shall consider the quality of training provided, continuity of training provided, outside influences, and extenuating circumstances.

b. The TRB shall not make recommendations based on perceived NFS potential or aspects unrelated to the administrative application of the NFS's training.

c. For more information, refer to CNATRAINST 1500.4H.

## 5. Instructor Continuity

a. Students may be assigned up to two on-wing instructors. Familiarization blocks FAM41 and FAM43 shall be flown with an on-wing. A FAM "S" IP may be substituted for one FAM41 or FAM43 flight as an off-wing. FAM42, FAM46, and FAM47 blocks do not require on-wing instructors. Familiarization check flight FAM4490 shall not be flown with an on-wing instructor.

b. 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 of 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 1500.4H. 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) (see paragraph 11.b.(3)(c)). If more than seven days have elapsed between a simulator event and a subsequent flight event, a mandatory warmup simulator(s) shall be awarded. Per CNATRAINST 1500.4H, the TRAWING Commander may authorize the warmup to be performed in the aircraft, but event must still be coded as a WU and is not an advancing X. 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. Instructors retain the ability to award a "count" UNSAT on a WU or ET event for flagrant safety or flight rule violations, unsatisfactory procedural knowledge, or grossly unsafe performance that is not delay-related. Refer to paragraph 608.b of CNATRAINST 1500.4H for further guidance. The following specific guidelines govern the administration of warmup events:

a. Warmup Flights for Extended Breaks in Training. For administration of warmup events for delays in training of more than 30 days, the CO shall determine an appropriate warmup plan per CNATRAINST 1500.4H.

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 1500.4H for warmup event guidelines).

<b>CRITERIA FOR AWARDING WARMUP EVENTS IN STAGE</b>		
<b>Break* (Days)</b>	<b>Warmup Events</b>	<b>Remarks</b>
1-6	None	<ul style="list-style-type: none"> <li>• Except the first solo flight, FAM4501 (see paragraph 6.e.(1)).</li> <li>• Special rules apply to FCL and CQL stages (see paragraph 6.c.).</li> </ul>
7-13 Sim to A/C	1 Mandatory Simulator	<ul style="list-style-type: none"> <li>• Mandatory WU is not an advancing event.</li> <li>• WU event may be flown in aircraft with the TRAWING Commander's approval. (See paragraph 6.)</li> </ul>
7-13 All Others	1 Optional	<ul style="list-style-type: none"> <li>• Optional WU based on performance and is required if overall grade is Marginal or UNSAT.</li> <li>• WU is prohibited if performance meets MIF or is sufficient to meet MIF by EOB.</li> </ul>
14-30 Sim to A/C	2 Mandatory Simulators	<ul style="list-style-type: none"> <li>• Mandatory WUs are not advancing events.</li> <li>• For blocks with a single simulator event, only one mandatory WU event is required.</li> </ul>
14-30 All Others	1 Mandatory 1 Optional	<ul style="list-style-type: none"> <li>• Mandatory WU is not an advancing event.</li> <li>• Optional WU based on performance and is required if overall grade is Marginal or UNSAT.</li> <li>• Optional WU is prohibited if performance meets MIF or is sufficient to meet MIF by EOB.</li> </ul>

\*Break = (Current Julian Date) - (Julian Date of last simulator or flight event in stage).

c. Warmup events are separate from front-seat landing currency events. See paragraph 11.b.(3)(a)-(c) for landing currency requirements.

d. Stage-specific Emergency Procedure simulators satisfy currency requirements for that stage, i.e., the FAM2101 counts as a FAM stage simulator.

e. 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 (for CQL) is subsequently required every two days thereafter. A touch-and-go or trap at the ship satisfies this requirement.

f. Optional Warmup Criteria. Optional warmup criteria are defined in CNATRAINST 1500.4H. Optional warmup events are based on the student's performance. If the student is in the optional warmup window and their performance meets MIF or 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 UNSAT, the event will be graded as such and coded as a warmup.

g. Additional Safe-for-Solo Warmup Events

(1) 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.

(2) 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 within 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.

7. Additional Flights and Simulators

a. Extra Training Events (SXX87). All ETs shall be dual (exceptions: FCL or CQL as determined by the LSO or events awarded to address a solo-specific training deficiency, such as minimum syllabus solo time) and coded as SXX87, e.g., FAM4187.

(1) IPC/FPC ET Events. IPC/FPC ET events are awarded to compensate for training inadequacies, (e.g., poor event/maneuver continuity or improper instruction), not to compensate for a lack of ability, aptitude, or effort on the part of the SNA.

(a) The CO may authorize one ET prior to an IPC and up to two ETs prior to an FPC.

(b) Authorization for IPC and FPC ET events shall be documented on a supplementary ATF and shall clearly state the training deficiency that warrants the ETs.

(c) IPC/FPC XX87 events **shall not** be awarded to remediate UNSAT student performance unrelated to unit/instructional training inadequacies.

(2) Minimum Flight Time ET Events. TRAWING Commanders shall ensure that all minimum curriculum flight time requirements are met.

(a) The minimum night flight hour requirements shall not be waived. Events to meet these requirements shall be flown as ET events (SXX87).

(b) Minimum solo flight time may be waived by the TRAWING Commander. This shall be documented in the ATJ with a waiver letter. If the TRAWING Commander chooses not to waive minimum solo time, additional solo events shall be flown as ET events (SXX87).

(c) Squadron COs are responsible for ensuring that ETs flown to meet curriculum minimums provide the SNA with worthwhile training.

b. Adaptation Events (SXX84). The Squadron CO may grant events required for adaptation to the flying environment when requested in writing` 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 and shall not be mentored by CSIs.

8. Student Monitoring Status (SMS)

a. The objective of SMS is to focus supervisory attention on an SNA's progress in training, address performance deficiencies, and assess the SNA's potential to complete the program. It may also be applied to SNAs who require supervisory attention while trying to resolve personal issues. The intent of SMS is to focus on struggling students to help them overcome their problems and provide an expedited route to attrition if this focused attention is unsuccessful.

b. SMS is intended as a short-term program to address specific performance deficiencies within a block or stage of training. Completion of a phase of training or a syllabus is not an acceptable timeline for SMS. SMS requires that specific performance goals be met by the SNA within a specific time period. The time period may reference syllabus events. Specific performance goals shall be related to training standards rather than relative performance against an SNA's peers.

c. An SMS training plan should include, but is not limited to, training tailored to correct specific deficiencies or to address personal issues.

d. An SNA who receives two UNSATs in a block of training or three UNSATs within a phase of training shall be placed on SMS.

e. The Squadron CO is not constrained to the UNSAT-related SMS trigger; the CO, OPSO, or Student Control Officer may place an SNA on SMS anytime that the CO perceives a need for focused attention to resolve SNA difficulties.

f. An SNA's Class Advisor shall document placement on and removal from SMS in the SNA's ATJ via a supplementary ATF. All SMS-related documentation shall be completed on blue paper. Documentation placing an SNA on SMS shall include:

- (1) The reason the SNA is being placed on SMS,
- (2) The specific goals to be met for successful removal from SMS,
- (3) The period of time the SNA is to be on SMS in order to achieve the specified goals,
- (4) Consequences for not meeting the goals (SNAs shall proceed to FPC),
- (5) Specific additional training or extra instruction (if any), not to be confused with Extra Training (ET) events,
- (6) Specific scheduling restrictions (if any), and
- (7) Any other applicable requirements or restrictions.

g. Documentation of SMS failure shall include the specific goal(s) not achieved. For SMS that is triggered by a syllabus event, file the initiating blue SMS supplementary ATF on the right side of the ATJ and directly above said event's grade sheet. Upon successful completion of SMS, file the closeout blue SMS supplementary ATF on the right side of the ATJ and directly above the closeout-event grade sheet. If SMS is not related to a syllabus event (i.e., personal issues, academic failure, etc.), then file the initiating and closeout blue SMS supplementary ATFs on the left side of the ATJ, below the DOR and TTO policy statements.

h. If an SNA achieves their SMS goals within the designated period or when personal issues have been resolved, then the SNA is returned to the normal syllabus flow. If the SNA is unable to meet the specific goals of SMS or performance does not improve, the SNA shall be referred to a command-directed FPC.

9. Ground Training and Briefing Requirements

a. Mission Preparation, Briefings, and Debriefings

(1) EOB Events. The IP shall carefully review the ATFs 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 all critical and optional items for the event's training block.

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

(3) Briefing

(a) The instructor shall review the SNA's previous block ATFs before each event. Thoroughly cover the current mission's:

1. Discuss Items, as listed in Chapters III-VIII.

2. Specific objectives.

3. Techniques and required procedures for accomplishing those objectives.

4. Planned profile and contingencies.

(b) Duty officers shall provide a safety of flight brief to each solo SNA. In the case of multi-plane events or Field Carrier Landing Practice (FCLP), this brief shall be given by the flight lead or LSO as appropriate.

(4) Debriefing

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

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

(c) Debriefing must be detailed and comprehensive. The ATF shall be completed prior to the SNA's next event. Exceptions may be made for out-and-ins, cross-country flights, and during FCL and CQL. In such instances, the SNA will be provided feedback on performance as soon as possible following the event.

b. Emergency Procedures Briefing and Training

(1) EP training builds the student's confidence in the aircraft. The IP shall conduct EP 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 EP training into non-EP 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 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. 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. The following scale shall be used to document SNA performance on maneuvers attempted during each event. This is an absolute grading scale. It shall be interpreted and used by instructors the same way for all items on all events. SNA performance as referred to in the scale below should be judged only against the CTS provided for a given item in the MCG.

(a) Demonstrated (NG/1 Level)

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 block or event. Also specify completed SSRs in the ATF's maneuver item content line and document date of exposure via the SSR button on the ATF menu bar.

(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 meets or exceeds CTS. Deviations outside CTS are allowed, provided they are brief, minor, and do not affect safety of flight. Corrections are appropriate and timely.

(e) Excellent (E/5 Level). 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 timely.

(2) Solo Events

(a) Assign NG/1 for performed maneuvers that were unobserved.

(b) Any IP (or qualified RDO/WDO at the TRAWING Commander's discretion) may grade an exceptional observed maneuver as E/5 or an unsafe observed maneuver as U/2 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 "UNSAT." Use the following definitions to characterize event grades.

(a) Pass

1. Prior to EOB: progress is adequate to meet MIF by EOB.

2. EOB: the student's performance meets or exceeds block MIF.

(b) Marginal. Ability to meet MIF by EOB is questionable. IPs may not award a Marginal on an EOB event, check flight, IPC, or FPC.

(c) UNSAT. Student exhibits dangerous tendencies, or progress toward meeting EOB standards is insufficient. Overall UNSAT is at IP's discretion (does not require a MIF of 2).

(4) Awarding Overall Event Grades. The student's overall grade is based on the student's performance against 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 on 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 "regression" and trigger an UNSAT.

(c) Exception. 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 address uneven progress through training. Regression is defined as performance below the previous block MIF. Regression rules do not apply to the first block in each stage or between media within stage, i.e., from simulator events to flight events. 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 maneuver is not a check flight/safe-for-solo critical (+) item, and

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

(b) The IP shall award an overall UNSAT if:

1. Regression was to a U/2 where F/3 or G/4 was required on previous block MIF, or

2. Performance on the same maneuver for two consecutive events resulted in an F/3 where a G/4 was required on previous block MIF, 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.
  - c. ATC direction.

(7) Event Status. 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 (Note: this 75-percent flight-time requirement does not apply to OCF, FCL41, FCL42, and CQL41 blocks), and

2. There are sufficient events remaining in block to allow for completion of all remaining required maneuvers.

3. Otherwise, assess the event incomplete.

(b) Completion Events

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

2. For events flown exclusively to clear an incomplete, grades on maneuvers repeated from the incomplete event do not count toward the SNA's score, except where the grade assigned for the repeated item is lower than the lowest grade previously assigned on that item from all previous attempts on that item.

(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 CO 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, except:

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 UNSAT.

3. The SNA should be able to demonstrate required levels of proficiency without instructor assistance; however, instruction is allowed on check events and SNAs may reattempt maneuvers at the instructor's discretion.

4. The entire event should be devoted to assessing the SNA's skill attainment, ability, and readiness to progress to the next block of training. All maneuvers indicated with a plus (+) are critical and must be accomplished to MIF. Regression rules do not apply.

(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 observe sufficient examples of a given maneuver to assess the SNA's overall performance. If the flight profile is incomplete because too much time was dedicated to reattempting maneuvers or additional training, it should be graded UNSAT/Incomplete.

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

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

a. Any critical item is below MIF, or

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

c. Any maneuver is graded U/2.

(3) Progress Check Procedures

(a) Progress Checks flown in the aircraft or simulator are holistic reviews of an NFS's proficiency, judgment, air sense, and overall ability to maneuver the aircraft safely and confidently. The student must also demonstrate the potential to successfully complete follow-on training. Progress checks should focus on the student's weak areas and will normally be comprised of 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/simulator events and Ready Room UNSAT events all contribute to the same IPC/FPC process; each SNA may only have one IPC per phase of training.

(b) Nonfamiliarization Pattern/Landing Failure. If a student triggers an IPC or FPC in a stage other than Familiarization because of an UNSAT pattern/landing, any subsequent re-fly events shall be flown in the same stage. If multiplane event, lead is not required and only items related to landing pattern shall be graded. IP need not be qualified in stage and shall add a comment to General Comments (ATF) with above information included. Example: BFM4502 may be flown with a non-BFM qualified LSO. BFM4588 would be flown with designated IPC Check Pilot, but need not be BFM-qualified.

(c) 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 UNSAT events in the same block.

Note: For the purposes of determining IPC triggers, UNSATs on events coded XX84, XX85, XX86, and XX87 shall not be used. Any events graded Marginal shall not be used in determining IPC triggers.

c. Following a single RRU event.

d. Operations Officer or above may direct an IPC when the student's potential to complete MPTS is in doubt.

2. Outcomes:

a. Passing the IPC returns the student to normal syllabus flow.

b. Failing results in an FPC.

c. Marginal is not a possible outcome of an IPC.

3. IPC IPs. IPC IPs shall be senior O-3 or above, and shall be designated in writing by the CO. The IPC is the SNA's first step in the attrition process, and IPCs should only be performed by experienced instructors who carry the CO's confidence that they have a complete understanding of standards-based grading, MPTS, MIF/CTS requirements of the syllabus, and the IPC/FPC process.

a. An SNA's on-wing (FAM stage) or the instructor that awarded the UNSAT resulting in the IPC is ineligible to perform the IPC.

b. An IPC IP who awards an UNSAT on an IPC shall not fly with that SNA again during that stage of training.

c. An IPC conducted in a simulator shall be evaluated and graded by a qualified squadron IPC IP. A qualified CSI shall be assigned to assist.

(d) FPC. The following defines when to conduct an FPC, FPC outcomes, and FPC IPs.

1. Criteria for an FPC are:

a. Failure of an IPC.

b. In any case where an SNA has undergone an IPC in phase and subsequently meets any of the IPC triggers listed previously.

c. Two academic examination failures in a phase.

d. Four cumulative UNSATs in a phase, including academic failures.

e. Failure to meet SMS goals.

f. At the discretion of the CO when there is doubt regarding the SNA's potential to successfully complete a phase of training.

g. Note: SNAs who trigger an FPC due to subparagraphs c-f above may trigger an FPC without having

undergone an IPC in phase. This is intentional, because of the concern generated by these triggers.

h. Note: For the purposes of determining FPC triggers, UNSATs on events coded XX84, XX85, XX86, and XX87 shall not be used. (Any events graded Marginal shall not be used in determining FPC triggers.)

i. Note: CQL4490 disqualification, like all UNSAT check flights, will result in an IPC or FPC. Whether an IPC or FPC, this may be conducted under the rules of a CO-directed FPC (interview, board, ATJ review, etc.) and must be completed prior to any other training.

2. Outcomes are:

a. Passing the FPC returns the student to normal syllabus flow.

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

c. Marginal is not a possible outcome for an FPC.

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 instructor (O-4 or above) to conduct the FPC.

a. An SNA's on-wing (during FAM stage) or the instructor that awarded the UNSAT resulting in the FPC is ineligible to perform the FPC.

b. An FPC conducted in a simulator shall be evaluated and graded by a qualified squadron FPC instructor. A qualified CSI shall be assigned to assist.

d. Progress Check Counseling

(1) Prior to an IPC and FPC. The student's Class Advisor, Student Control Officer, or the Operations Officer shall counsel the student on the Progress Check training review process and document counseling on a supplemental ATF or the IPC ATF (if the IPC is given by one of the above IPs).

(2) Upon Completion of an IPC. The IPC IP, Student Control Officer, or Operations Officer shall counsel the student on the Progress Check process, his/her retention/attrition recommendations, and future courses of action. The IPC Instructor should also strive to ensure the NFS is coping with the Progress Check process appropriately, and notify appropriate squadron leadership immediately if there are any concerns. Post-IPC counseling shall be documented on the IPC ATF.

(3) Upon Completion of an FPC. The CO or the FPC IP will counsel the student. Counseling should consist of, at a minimum, the Progress Check process, attrition/retention recommendation, and future courses of action. The CO shall document counseling on the FPC ATF or on a supplemental ATF (if the CO was not the FPC instructor).

11. Special Instructions and Restrictions

a. Flight Hour/Event Requirements and Restrictions for 1542.176

(1) Programmed Hours and Events. Programmed syllabus flight hours are listed on page x. Event lengths, SXX86, SXX87, SXX88, and SXX89 events will cause variation. Accomplish all syllabus events.

(2) Minimum Night Hours. 14.0 hours Advanced E-2/C-2. See CH-1, paragraph 7.a.(2).

(3) Minimum Solo Hours. 21.0 hours Advanced E-2/C-2. At least 80 percent of the H/X for each solo event must be logged to count the event complete (exception: FCL43, CQL42, CQL43, and CQL44 blocks).

(4) Maximum Daily Student Activities (Aircraft, Simulator, or Academic)

(a) Students shall not be scheduled for, or participate in, more than two aircraft or simulator events during one duty day, with the following exceptions:

1. Three dual cross-country legs (except RI).
2. Three CQL events.
3. Up to four additional hours of academic training (MCG duration).

(b) Academic and flight support training must be kept within the 12-hour crew day (maximum of eight hours of academic training). Students are also limited to three aircraft manups per day (four for cross-country and CQL41-43 events). A manup is defined as entering the cockpit. Scheduling in excess of the above limitations shall be by exception only, requires specific approval of the TRAWING Commander, and must be documented on the ATF.

(c) Only one event per day shall be flown for the following events or blocks (excluding lectures):

CO31 block	FAM4101
BI31 block	FRM4102
BI41 Block	

(d) Student shall not be enrolled in more than two stages in Advanced E-2/C-2 (excluding lectures).

(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, simulator event, or lecture. 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 (provided one of the IPs is from the safe-for-solo flight, if a multiplane event). 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.

(8) All lectures/exams that have online courseware shall utilize online courseware except during detachments. The detachment coordinator must contact the Course Curriculum Coordinator (CCC) and request the exams for detachment. The CCC must inform the Wing Stan Officer and Strike Pipeline Training Officer any time paper exams are requested.

b. Solo Restrictions

(1) Safe for Solo or Unsafe for Solo. Upon completion of a curriculum dual flight preceding an SNA solo, the instructor shall check either "Safe for Solo" or "Unsafe for Solo" on the ATF.

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

(3) 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 24 hours of 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). Events shall be flown in the same stage. If multiplane event, lead is not required and only items related to front-seat landing currency shall be graded. The instructor need not be qualified in stage, and shall add a comment to General Comments with above information included.

c. Weather Requirements. Forecast weather shall be used for solo minimums.

<u>STAGE</u>	<u>FLIGHT</u>	<u>DUAL</u>	<u>SOLO</u>	<u>REMARKS</u>
FAM	ALL	VFR	1500/3	Minimum of three flights with visual ground reference are required prior to FAM4490. Notes (1), (3) and (6).
NFM	ALL	VFR	1500/3	Notes (2) and (4).
OCF	4101	OPNAV minima	-----	
BI/RI/ IR	ALL	OPNAV minima	-----	
AN	ALL	OPNAV minima	1000/3	
FRM	ALL	OPNAV minima	1000/3	Notes (1) and (3).
NFR	ALL	OPNAV minima	1500/3	Note (2).
FCL	4301- 4305 4490	Local VFR	1000/3	Notes (1) (2), and (3).

<u>STAGE</u>	<u>FLIGHT</u>	<u>DUAL</u>	<u>SOLO</u>	<u>REMARKS</u>
CQL	4101	Local VFR	1000/3	Notes (2) and (5).
	4201-11		1000/3	Notes (2) and (5).
	4390		1000/3	Notes (2) and (5).
	4490	-----		Wx as outlined in CNATRAINST 3740.9E

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 syllabus flights and student night 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) CQL student solo flights may be launched with weather between 500/2 and 1000/3 with the expressed consent of the Squadron CO on a case-by-case basis (no blanket waivers authorized) and must be delineated on the ATF. This authority cannot be delegated.

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

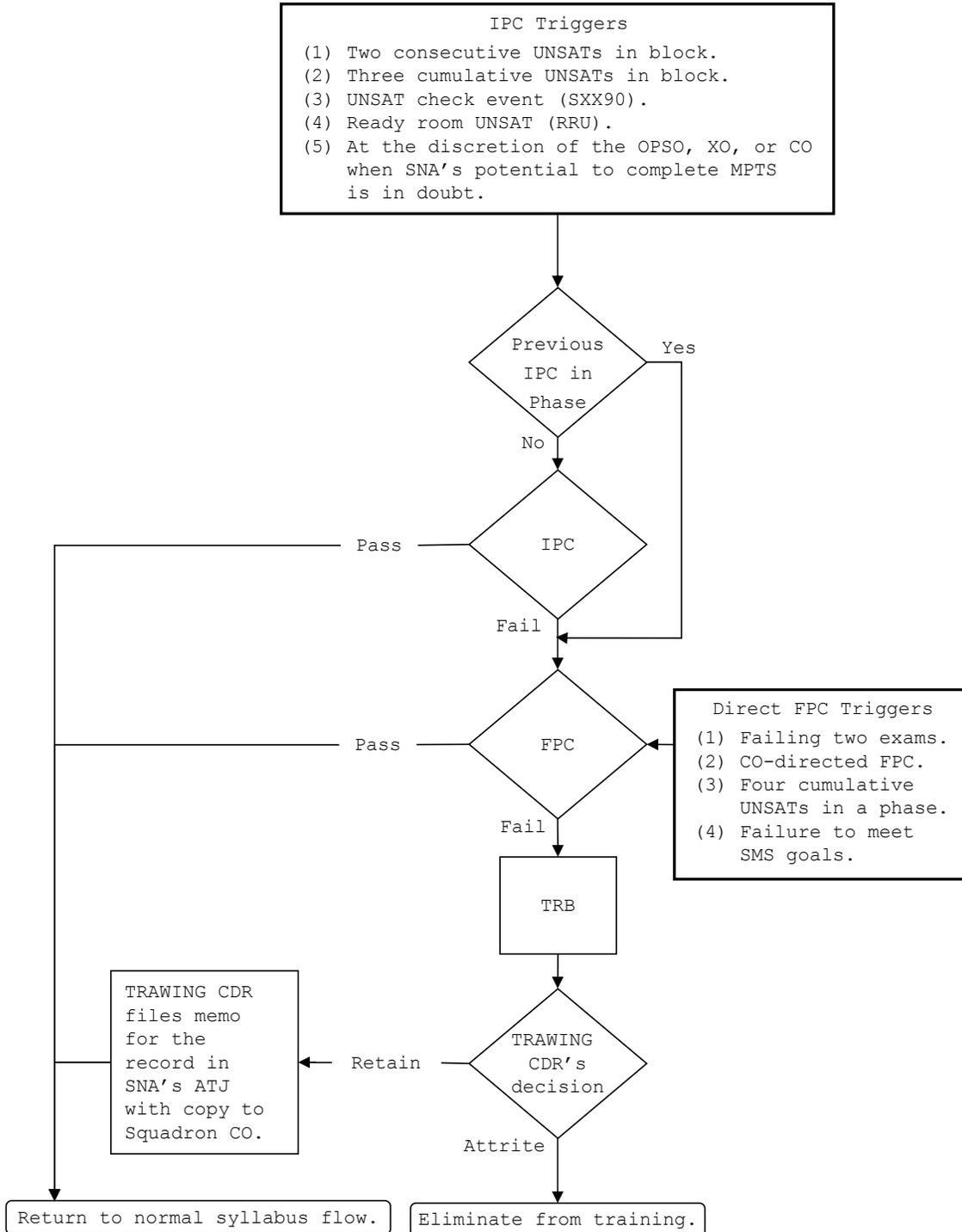
d. Aircraft/Simulator Interchangeability. Simulator events may be conducted in the aircraft when the simulator is unavailable for extended periods of time (excluding 2XXX (EP) events).

e. Gradesheets/ATF. FCLP-type landing comments shall be included on ATFs (using TIMS) for every FCLP-type pass flown on an IFLOLS lens.

Example:

	<u>180</u>		<u>90</u>		<u>45</u>	<u>X</u>	<u>IM</u>	<u>IC</u>	<u>AR</u>
B	650 ft TWA		450 ft		-200	TMP.HX	HIM	OC.NEP.CDIC	LOBAR

**MPTS PROGRESS CHECK TRAINING REVIEW PROCESS**



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Chapter II

Ground Training

Blk #	Media	Title	Events	Hrs	Blk Name
ASI01	Lect/MIL	Aviation Student Indoctrination	10	7.7	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. CQL4490 prior to ASI0110.

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	
ASI0110	Admin	Squadron Checkout - Advanced E-2/C-2		0.1	

3. Syllabus Note. ASI0107 must be complete prior to any syllabus or practice simulator event.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
ENG01	MIL/CAI	Engineering	28	33.2	ENG
1.	<u>Prerequisites.</u>	ASI0103-6.			
2.	<u>Events</u>				
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		2.0	
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		1.5	
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	1.0
ENG0125	CAI	Display System and Malfunctions	1.5
ENG0126	MIL	Engine Start Procedures	1.0
ENG0127	MIL	Engineering Review	2.5
ENG0128	CAI	Engineering Block Exam Test	2.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
AER01	CAI/MIL	Aerodynamics	7	6.0	Aero
1. <u>Prerequisites.</u> ASI0103-6.					
2. <u>Events</u>					
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		1.0	
AER0107	CAI	Aeronautics Block Exam Test		1.0	

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
MET01	CAI/MIL	Meteorology	4	4.0	Metro

1. Prerequisites. ASI0103-6.

2. Events

MET0101	CAI	Review of Basic Meteorological Principles		1.0	
MET0102	MIL	Meteorology and Flight Planning		1.5	
MET0103	MIL	Meteorology Review		0.5	
MET0104	CAI Test	Meteorology Exam		1.0	

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
NAV01	Lab/MIL/ CAI	Instrument Navigation	9	10.1	INAV
1.	<u>Prerequisites.</u>	ASI0103-6.			
2.	<u>Events</u>				
	NAV0101	LAB	Review of FLIP and FAA Publications	1.8	
	NAV0102	MIL	Introduction to INAV and Voice Procedures	1.0	
	NAV0103	MIL	Departure and Terminal Procedures	1.0	
	NAV0104	CAI	Interpretation of High Altitude Instrument Approach Plates	0.8	
	NAV0105	LAB	Fuel, Weather, and Alternate Airfield Planning Lab	1.2	
	NAV0106	LAB	Flight Planning - Departure	0.8	
	NAV0107	LAB	Flight Planning - Enroute	1.0	
	NAV0108	LAB	Practical Problems	1.0	
	NAV0109	CAI	Instrument Navigation Exam Test	1.5	
3.	<u>Syllabus Notes.</u>	None.			
4.	<u>Discuss Items.</u>	None.			

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Chapter III

NATOPS Training

This chapter does not apply to Advanced E-2/C-2 students.

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## 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, and FCL. 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 MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. On-Wings. Students may be assigned up to two on-wing instructors. Familiarization blocks FAM41 and FAM43 shall be flown with an on-wing. A FAM "S" IP may be substituted for one FAM41 or FAM43 flight as an off-wing. FAM42 block does not require on-wing instructors. Familiarization check flight FAM4490 shall **not** be flown with an on-wing instructor.

3. FCL Note. Upon beginning FCL4201, students shall not participate in any other stage while training in FCL.

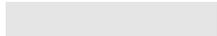
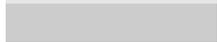
4. FAM Notes

a. FAM4101 shall not be scheduled with any other events (excluding lectures) on the same day.

b. Student shall perform a full-stop landing with roll-out to the end of the runway on two separate events within FAM41, FAM42, and FAM43 blocks prior to FAM4490.

c. Students shall complete the NATOPS open- and closed-book exams prior to the FAM4490. Students shall present the graded open- and closed-book exams to their instructor prior to the brief.

5. Familiarization Stage MIF

 Simulator/Device Event  
 Check Flight Event

FAMILIARIZATION STAGE MANEUVER ITEM FILE														
CTS REF	MANEUVER	FAM3103	FAM2102	FAM3204	FAM4103	FAM4203	FAM4304	FAM2201	OCF3101	OCF4101	FAM4490	FAM4501	FAM4601	FAM4702
1	General Knowledge/ Procedures	3+	4+	4+	3+	4+	4+	4+	3+	4+	4+	4+	4+	4+
2	Emergency Procedures	3+	3+	3+	3+	3+	4+	4+	3+	4+	4+	4	4+	3
3	Headwork/ Situational Awareness	2+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	4+
4	Basic Airwork	3+	3+	3+	3+	3+	4+	3+	3+	3+	4+	1	4+	4+
5	Mission Planning/ Briefing/ Debriefing	3+	4+	4+	4+	4+	4+	3+	3+	4+	4+	4+	4+	4+
6	Communications	3+	3+	3+	3+	3+	4+	3+	4+	3+	4+	1	4+	4+
7	Ground Operations	3+	3+	3+	3+	3+	4+	3+	4+	4+	4+	1	4+	4+
8	Flight Admin	2+	3+	3+	2+	3+	4+	3+	3+	2+	4+	1	4+	4+
2	Start Malfunctions	3+	3+	3+				4+						
2	Ground Emergencies	3+	3+	3+				4+						
2	Aborted Takeoff	3+	3+	3+				4+						
2	Takeoff EPs		3+	3+				4+						
2	Engine EPs	3+	3+	3+				4+						
2	Flight Control EPs		3+					4+						
2	Gear EPs		3+					4+						
2	Electrical EPs	3+	3+	3+				4+						

MIF continued on next page.

<b>FAMILIARIZATION STAGE MANEUVER ITEM FILE</b>														
<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM3103</b>	<b>FAM2102</b>	<b>FAM3204</b>	<b>FAM4103</b>	<b>FAM4203</b>	<b>FAM4304</b>	<b>FAM2201</b>	<b>OCF3101</b>	<b>OCF4101</b>	<b>FAM4490</b>	<b>FAM4501</b>	<b>FAM4601</b>	<b>FAM4702</b>
2	Hydraulic EPs		3+	3+				4+						
2	ECS EPs		3+					4+						
2	Fuel System EPs		3+					4+						
2	Ejection		3+					4+						
2	Swerve/Blown Tire on Landing		3+	3+				4+						
2	Short-field Arrestment	3+	3+	3+				4+						
2	Rejected Landing/Go-Around		3+	3+										
2	Lost Communications	3+		3+										
9	Takeoff	3+	3+	3+	3+	3+	4+	3+	4+	4+	4+	1	4+	4+
10	Departure Procedure	3+	3+	3+	3+	3+	4+	3+	4+	4+	4+	1	4+	4+
8	Course Rules	3+		3+	2+	3+	4+		3	3	4+	1		
24	Turn Pattern	3+			4+									
28	Accelerated Stall	3+			3+									
28	Break Turn Stall	3+			3+									
28	Power Off Stall	3+			3+									
28	Landing Attitude Maneuver	3+			4+									
28	Landing Attitude Stall	2+			3+									
28	Approach Turn Stall	2+			3+									
28	Stall Series			3+			4+				4+			

MIF continued on next page.

FAMILIARIZATION STAGE MANEUVER ITEM FILE														
CTS REF	MANEUVER	FAM3103	FAM2102	FAM3204	FAM4103	FAM4203	FAM4304	FAM2201	OCF3101	OCF4101	FAM4490	FAM4501	FAM4601	FAM4702
28	Pattern Stall and Recovery			3+					3+					
25	Vertical Recovery			3+	3+		4+				4+			
25	Min Radius Turn			3+	3+		3+				3+			
26	Aileron Roll	3+			3+									
26	Wingover	3+			3+									
26	Barrel Roll	3+			3+									
26	Aerobatics			3+			3+				3+	1		
26	Squirrel Cage			3+			3+				3+	1		
27	Unusual Attitude Recovery			3+	3+		4+				4+			
28	High AOA/ Deep Stall Investigation/ Rudder-induced Departure								3+	3+				
28	70-Degree Nose-High Departure								3+	3+				
28	90-Degree Nose-High Departure								3+					
28	110-Degree Nose-High Departure								3+	3+				
28	Lateral Stick Adverse Yaw Departure								3+	3+				
28	Spin/Spin Recovery								3+					
2	Stuck Throttle Approach								3+					

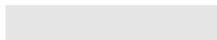
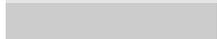
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<b>FAMILIARIZATION STAGE MANEUVER ITEM FILE</b>														
<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM3103</b>	<b>FAM2102</b>	<b>FAM3204</b>	<b>FAM4103</b>	<b>FAM4203</b>	<b>FAM4304</b>	<b>FAM2201</b>	<b>OCF3101</b>	<b>OCF4101</b>	<b>FAM4490</b>	<b>FAM4501</b>	<b>FAM4601</b>	<b>FAM4702</b>
12	Descent/Field Entry	3+	3+	3+	3+	3+	4+	3+			4+	1	4+	4+
21	Straight-in Approach		3+	3+			3+	3						
21	Downwind Entry		3+	3+			3+	3						
16 17	IFR Recovery to VFR Pattern			3+				3						
20	Precautionary Approach(es)		2+	3+	2+	3+	4+	4+	3+	3+	4+	1	4	4
21	VFR Landing Pattern	3+	3+	3+	2+	3+	3+	3+	3+	3	3+	1	3+	4+
22	Field Carrier Landing	2+		2+	2+	2+	3+		2+	3	3+	1	3+	3+
22	NF Touch-and-Go			3+		3+	3+		3+		3+			3+
22	FF Roll-and-Go	3+		3+	3+	3+	3+				3+		3	4+
22	Half-Flap Roll-and-Go	3+				3+								
22	NF Roll-and-Go			3+		3+								
22	Crosswind Landings			2+	2	3	3			3	3	1	3	3
23	Waveoff	3+		3+	3+	3	3		3		3+	1	3	4
22	Full-Stop Landing	3+		3+	3+	3+	4+		4+	3+	4+	1	4+	4+
22	No-HUD Landings	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+		3+	
20	Bird Strike/Dirty PA		3+				3+							
20 22	PA to Full Stop			3+		3+	3+							
22	Full Stop with Blown Tire Non-arrested		3+											

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<b>FAMILIARIZATION STAGE MANEUVER ITEM FILE</b>														
<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM3103</b>	<b>FAM2102</b>	<b>FAM3204</b>	<b>FAM4103</b>	<b>FAM4203</b>	<b>FAM4304</b>	<b>FAM2201</b>	<b>OCF3101</b>	<b>OCF4101</b>	<b>FAM4490</b>	<b>FAM4501</b>	<b>FAM4601</b>	<b>FAM4702</b>
22	No-Flap Landings		3+											
22	Long-Field Arrestment		3+											
22	Half-Flap Arrestment	3+												
	Special Syllabus Requirements				1									

6. Night Familiarization Stage MIF

 Simulator/Device Event  
 Check Flight Event

<b>NIGHT FAMILIARIZATION STAGE MANEUVER ITEM FILE</b>						
<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFM3101</b>	<b>NFM2101</b>	<b>NFM4102</b>	<b>NFM4201</b>	<b>NFM4301</b>
1	General Knowledge/Procedures	3+	3+	4+	4+	4+
2	Emergency Procedures	4+	4+	4+	4+	4
3	Headwork/Situational Awareness	3+	3+	3+	3+	4+
4	Basic Airwork	3+	3+	4+	4+	4+
5	Mission Planning/Briefing/Debriefing	3+	4+	4+	4+	4+
6	Communications	3+	3+	4+	4+	4+
7	Ground Operations	3+	4+	4+	4+	4+
8	Flight Admin	3+	3+	4+	4+	4+
2	Takeoff Emergencies		3+			

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<b>NIGHT FAMILIARIZATION STAGE MANEUVER ITEM FILE</b>						
<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFM3101</b>	<b>NFM2101</b>	<b>NFM4102</b>	<b>NFM4201</b>	<b>NFM4301</b>
2	Aborted Takeoff		3+			
2	Electrical Emergencies		3+			
2	In-Flight Emergencies		3+			
2	App/Landing Emergencies		3+			
2	Landing Emergencies		3+			
2	Lost Communications		3+			
9	Takeoff	3+	3+	3+	4+	4+
10	Departure	3+	3	3+	4+	4+
8	Course Rules	3+	3+	4+	4+	
13	Visual Navigation	3+		4+	4+	
13	Dead Reckoning	3+		4+	4+	
12	Descent/Field Entry	3+		4+	4+	4+
21	VFR Landing Pattern	3+		3+	1	4+
22	Field Carrier Landing	2+		3+	1	3+
22	NF Touch-and-Go		3+	3+		
22	FF Roll-and-Go	3+		3+		4+
22	Crosswind Landings	3		3	1	3
33 23	Waveoff	3+		4+	1	4
22	Full-Stop Landing	3+		4+	1	4+
16 17	Instrument Approach (Low Oil)		3			
22	No-Flap Landings		3+			
28	Pattern Stall/Recovery		4+			
22	Landing/Touch-and-Go		2+			
2	Field Arrestment		4+			

7. FCL Stage MIF

Simulator/Device Event  
 Check Flight Event

<b>FCL STAGE MANEUVER ITEM FILE</b>							
<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL3101</b>	<b>FCL4101</b>	<b>FCL4201</b>	<b>FCL4305</b>	<b>FCL2101</b>	<b>FCL4490</b>
1	General Knowledge/ Procedures	4+	4+	4+	4+	4+	4+
2	Emergency Procedures	4+	4+	4+	4+	4+	4+
3	Headwork/Situational Awareness	4+	4+	4+	4+	4+	4+
4	Basic Airwork	3+	4+	4+	4+	4+	4+
5	Mission Planning/ Briefing/Debriefing	4+	4+	3+	4+	4+	4+
6	Communications	3+	4+	3+	4+	4+	4+
7	Ground Operations	3+	4+	4+	1	4+	1
8	Flight Admin	3+	4+	3+	1	4+	1
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.

FCL STAGE MANEUVER ITEM FILE							
CTS REF	MANEUVER	FCL3101	FCL4101	FCL4201	FCL4305	FCL2101	FCL4490
2	Short-field Arrestment	3+				3+	
2	Divert	3+				3+	
9	Takeoff	3+	4+	3+	4+	4+	4+
10	Departure	3+	4+	3+	4+	4+	4+
11	Enroute Navigation	3+	4	3+	1	4+	1
12	Descent/Field Entry	3+	4+	3+	4+	4+	4+
28	Pattern Stall/Recovery	3+					
34 22	FCLP Pattern	2+	3+	3+	4+	3+	4+
34 22	Start Position	2+	3+	2+	4+	2+	4+
34 22	AOA Control	2+	3+	2+	3+		3+
34 22	Glideslope Control	2+	3+	2+	3+		3+
34 22	Power Control	2+	3+	2+	3+		3+
34 22	Lineup Control	2+	3+	2+	3+		3+
34 22	Error Detection/Correction	2+	3+	2+	3+		3+
34	Response to LSO Calls	2+		2+	4+		4+
34 22	Bolter/Touch-and-Go Technique	2+	3+	2+	4+	3+	4+
34 22	Field Carrier Landing	2+	3+	2+	3+	2+	3+
22	NF Touch-and-Go		3				
22	FF Roll-and-Go		3+				

MIF continued on next page.

<b>FCL STAGE MANEUVER ITEM FILE</b>							
<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL3101</b>	<b>FCL4101</b>	<b>FCL4201</b>	<b>FCL4305</b>	<b>FCL2101</b>	<b>FCL4490</b>
34 23	Waveoff	3+	3	3+	4+	3+	4+
22	Full-Stop Landing	3+	4+	3+	4+	4	4+
2	Rejected Landing/Go-around Scenario	3+					

Blk #	Media	Title	Events	Hrs	Blk Name
CR12	MIL/CAI	Course Rules	2	3.0	CR2

1. Prerequisite. RI3204.

2. Events

CR1201 Lect Course Rules 2.0

CR1202A CAI NQI Course Rules Exam 1.0  
Test

CR1202B CAI VT-7 Course Rules Exam 1.0  
Test

CR1202C CAI VT-9 Course Rules Exam 1.0  
Test

3. Syllabus Notes. Exam content is different for each location. Students shall complete applicable exam.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
FAM11	MIL/CAI	Familiarization Flight Procedures	4	8.5	FAM1

1. Prerequisites

a. CR1202A, CR1202B, or CR1202C (applicable Course Rules Exam).

b. FAM4103 prior to FAM1104.

2. Events

FAM1101	MIL	Familiarization Flight Procedures I		3.3	
FAM1102	MIL	Familiarization Flight Procedures II		3.2	
FAM1103A	CAI Test	Kingsville Familiarization Flight Procedures Exam		1.0	
FAM1103B	CAI Test	Meridian Familiarization Flight Procedures Exam		1.0	
FAM1104	Lect	LSO Ball Flying Brief		1.0	

3. Syllabus Notes

a. Squadron LSO will give FAM1104.

b. Exam content is different for each location. Students shall complete applicable exam.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
OCF11	MIL/CAI	Out-of-Control Flight Procedures	2	2.0	OCF1

1. Prerequisite. FAM1103A or FAM1103B (applicable Familiarization Flight Procedures Exam).

2. Events

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

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
NA11	Lect/Exam	NATOPS	3	6.0	NATOPS

1. Prerequisite. FAM1103A or FAM1103B (applicable Familiarization Flight Procedures Exam).

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.

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

1. Prerequisite. FRM4201.

2. Events

NFM1101	MIL	Night FAM Flight Procedures	1.3
NFM1102	MIL	Night Emergency Procedures	1.2
NFM1103A	CAI	Kingsville Night FAM Test Procedures Exam	1.0
NFM1103B	CAI	Meridian Night FAM Test Procedures Exam	1.0

3. Syllabus Notes. Exam content is different for each location. Students shall complete applicable exam.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
FCL11	MIL/CAI	FCL Flight Procedures	3	2.5	FCLP

1. Prerequisites

- a. IR1103 (Instrument Rating Open-Book Exam).
- b. DIV1102 (Formation Exam II).
- c. NFM1103A or NFM1103B (applicable Night FAM Procedures Exam).

2. Events

FCL1101	MIL	Carrier Qualification Landing (FCLP) Procedures		1.0	
FCL1102	MIL	Night FCLP Procedures		0.5	
FCL1103A	CAI	Kingsville FCLP Exam Test		1.0	
FCL1103B	CAI	Meridian FCLP Exam Test		1.0	

3. Syllabus Notes

a. Student **shall** not participate in any other stage while training in FCL; however, FCL1101 and FCL4101 can be concurrent with another stage.

b. Exam content is different for each location. Students shall complete applicable exam.

4. Discuss Items. None.

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

1. Prerequisites

a. RI3204.

b. FAM1103A or FAM1103B (applicable Familiarization Flight Procedures Exam).

2. Syllabus Notes

a. Instructor shall demonstrate area familiarization.

b. 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM3103</b>
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+
9	Takeoff	3+
10	Departure Procedure	3+
8	Course Rules	3+
24	Turn Pattern	3+
28	Accelerated Stall	3+
28	Break Turn Stall	3+
28	Power Off Stall	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM3103</b>
28	Landing Attitude Maneuver	3+
28	Landing Attitude Stall	2+
28	Approach Turn Stall	2+
26	Aileron Roll	3+
26	Wingover	3+
26	Barrel Roll	3+
12	Descent/Field Entry	3+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	2+
22	FF Roll-and-Go	3+
22	Half-Flap Roll-and-Go	3+
23	Waveoff	3+
22	Full-Stop Landing	3+
22	No-HUD Landings	3+
22	Half-Flap Arrestment	3+

Blk #	Media	Title	Events	Hrs	H/X
FAM21	OFT	Familiarization Emergency Procedures	2	3.0	1.5

1. Prerequisite. FAM3103.
2. Syllabus Notes. The student will perform the following procedures IAW FTI, NATOPS, and SOP on the indicated event:

FAM2101

Takeoff with direct entry into landing pattern, pattern depart and reenter (break), downwind entry, VFR straight-in approach (FF, NF), VFR landing pattern, field carrier landings, no-flap touch-and-go, precautionary approaches (straight-in, abeam, overhead, pattern), rejected landing/go-around, short field arrestment (roll-in, fly-in), long field arrestment, full stop with blown tire (non-arrested), lost communications, taxi-to-line, and shutdown.

FAM2102

Start malfunction/emergency (any), failure to reach line speed, abort situation (any), takeoff emergency (any), one gear unsafe down, NWS caution light illumination airborne, tailpipe overheat, cabin pressurization failure, trim malfunctions, tail hook malfunctions, anti-skid failure, blown tire during field landing, locked-in low altitude compressor stall, bird strike/dirty precautionary approach, 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), and landing with NWS failure (free caster mode).

3. Special Syllabus Requirements. None.
4. Discuss Items

FAM2101

QOD, brake pressure caution light illuminated airborne, weight-on-wheels proximity switch failure (AOA indexers with aircraft on landing rollout), and arrested landing.

FAM2102  
QOD and OBOGS malfunctions.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM2102</b>
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	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+
9	Takeoff	3+
10	Departure Procedure	3+
12	Descent/Field Entry	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM2102</b>
21	Straight-in Approach	3+
21	Downwind Entry	3+
20	Precautionary Approach(es)	2+
21	VFR Landing Pattern	3+
22	No-HUD Landings	3+
20	Bird Strike/Dirty PA	3+
22	Full Stop with Blown Tire Non-Arrested	3+
22	No-Flap Landings	3+
22	Long-Field Arrestment	3+

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

1. Prerequisite. FAM2102.
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, and swerve on landing rollout.

FAM3202

Failure to reach line speed, abort, crosswind takeoff, engine emergencies, CNI failure, inadvertent IMC, blown tire during field landing, and short-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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM3204</b>
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+
9	Takeoff	3+
10	Departure Procedure	3+
8	Course Rules	3+
28	Stall Series	3+
28	Pattern Stall and Recovery	3+
25	Vertical Recovery	3+
25	Min Radius Turn	3+
26	Aerobatics	3+
26	Squirrel Cage	3+
27	Unusual Attitude Recovery	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM3204</b>
12	Descent/Field Entry	3+
21	Straight-in Approach	3+
21	Downwind Entry	3+
16 17	IFR Recovery to VFR Pattern	3+
20	Precautionary Approach(es)	3+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	2+
22	NF Touch-and-Go	3+
22	FF Roll-and-Go	3+
22	NF Roll-and-Go	3+
22	Crosswind Landings	2+
23	Waveoff	3+
22	Full-Stop Landing	3+
22	No-HUD Landings	3+
20 22	PA to Full Stop	3+

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

1. Prerequisite. FAM3204.

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. FAM4101 shall be the only event flown that day.

d. Student shall perform two full-stop landings with roll-out to the end of the runway on separate FAM flights prior to FAM4490.

e. 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.

3. Special Syllabus Requirements

a. During FAM41 block, IP shall demonstrate area familiarization, abeam PA, and simulated short-field arrestment (directional control in question) in full-flap configuration to avoid aircraft overstress.

b. During FAM4101, IP shall demonstrate aircraft exterior preflight and postflight aircraft inspection.

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4103</b>
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	3+
8	Flight Admin	2+
9	Takeoff	3+
10	Departure Procedure	3+
8	Course Rules	2+
24	Turn Pattern	4+
28	Accelerated Stall	3+
28	Break Turn Stall	3+
28	Power Off Stall	3+
28	Landing Attitude Maneuver	4+
28	Landing Attitude Stall	3+
28	Approach Turn Stall	3+
25	Vertical Recovery	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4103</b>
25	Min Radius Turn	3+
26	Aileron Roll	3+
26	Wingover	3+
26	Barrel Roll	3+
27	Unusual Attitude Recovery	3+
12	Descent/Field Entry	3+
20	Precautionary Approach(es)	2+
21	VFR Landing Pattern	2+
22	Field Carrier Landing	2+
22	FF Roll-and-Go	3+
22	Crosswind Landings	2
23	Waveoff	3+
22	Full-Stop Landing	3+
22	No-HUD Landings	3+
	Special Syllabus Requirements	1

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

1. Prerequisite. FAM1104 (LSO Ball Flying Brief).
2. Syllabus Notes
  - a. On-wing instructor not required for FAM42 block.
  - b. Student shall have a minimum of 60 FCLP-type landings prior to FAM4490. If this requirement is not met, FAM4287 (ET) flights shall be awarded as necessary.
  - c. Two of the three following maneuvers are desired on each flight in FAM42 block (Wx permitting): straight-in PA, overhead PA, or abeam PA.
  - d. The student shall perform the following maneuvers IAW FTI, NATOPS, and SOP on FAM4201-3: simulated short-field arrestment landing (with and without directional control), one time each in block.
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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4203</b>
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+
9	Takeoff	3+
10	Departure Procedure	3+
8	Course Rules	3+
12	Descent/Field Entry	3+
20	Precautionary Approach(es)	3+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	2+
22	NF Touch-and-Go	3+
22	FF Roll-and-Go	3+
22	Half-Flap Roll-and-Go	3+
22	NF Roll-and-Go	3+
22	Crosswind Landings	3
23	Waveoff	3
22	Full-Stop Landing	3+
22	No-HUD Landings	3+
20 22	PA to Full Stop	3+

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

1. Prerequisites

- a. FAM1104 (LSO Ball Flying Brief).
- b. FAM4203 prior to FAM4304.

2. Syllabus Notes

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

b. Student shall have a minimum of 60 FCLP-type landings prior to FAM4490. If this requirement is not met, FAM4287 (ET) flights shall be awarded as necessary.

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 in this block 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.

d. By EOB, IP demonstrate and SNA perform bird strike/dirty PA.

3. Special Syllabus Requirements. None.

4. Discuss Items

FAM4301

QOD, electrical system, and bird strike/dirty PA.

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4304</b>
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	Takeoff	4+
10	Departure Procedure	4+
8	Course Rules	4+
28	Stall Series	4+
25	Vertical Recovery	4+
25	Min Radius Turn	3+
26	Aerobatics	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4304</b>
26	Squirrel Cage	3+
27	Unusual Attitude Recovery	4+
12	Descent/Field Entry	4+
21	Straight-in Approach	3+
21	Downwind Entry	3+
20	Precautionary Approach(es)	4+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	3+
22	NF Touch-and-go	3+
22	FF Roll-and-Go	3+
22	Crosswind Landings	3
23	Waveoff	3
22	Full-Stop Landing	4+
22	No-HUD Landings	3+
20	Bird Strike/Dirty PA	3+
20 22	PA to Full Stop	3+

Blk #	Media	Title	Events	Hrs	H/X
FAM22	OFT	Familiarization Emergency Procedures	1	1.5	1.5

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	4+
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	4+
2	Ground Emergencies	4+
2	Aborted Takeoff	4+
2	Takeoff EPs	4+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM2201</b>
2	Engine EPs	4+
2	Flight Control EPs	4+
2	Gear EPs	4+
2	Electrical EPs	4+
2	Hydraulic EPs	4+
2	ECS EPs	4+
2	Fuel System EPs	4+
2	Ejection	4+
2	Swerve/Blown Tire on Landing	4+
2	Short-Field Arrestment	4+
9	Takeoff	3+
10	Departure Procedure	3+
12	Descent/Field Entry	3+
21	Straight-in Approach	3
21	Downwind Entry	3
16 17	IFR Recovery to VFR Pattern	3
20	Precautionary Approach(es)	4+
21	VFR Landing Pattern	3+
22	No-HUD Landings	3+

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

1. Prerequisites

- a. OCF1102 (OCF Exam).
- 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>OCF3101</b>
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+
9	Takeoff	4+
10	Departure Procedure	4+
8	Course Rules	3
28	Pattern Stall and Recovery	3+
28	High AOA/Deep Stall Investigation/Rudder-induced Departure	3+
28	70-Degree Nose-High Departure	3+
28	90-Degree Nose-High Departure	3+
28	110-Degree Nose-High Departure	3+
28	Lateral Stick Adverse Yaw Departure	3+
28	Spin/Spin Recovery	3+
2	Stuck Throttle Approach	3+
20	Precautionary Approach(es)	3+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	2+
22	NF Touch-and-Go	3+
23	Waveoff	3
22	Full-Stop Landing	4+
22	No-HUD Landings	3+

Blk #	Media	Title	Events	Hrs	H/X
OCF41	T-45	Out-of-Control Flight	1	0.5	0.5

1. Prerequisite. OCF3101.
2. Syllabus Notes. None.
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	4+
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	2+
9	Takeoff	4+
10	Departure Procedure	4+
8	Course Rules	3
28	High AOA/Deep Stall Investigation/Rudder-induced Departure	3+
28	70-Degree Nose-High Departure	3+
28	110-Degree Nose-High Departure	3+
28	Lateral Stick Adverse Yaw Departure	3+
20	Precautionary Approach(es)	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>OCF4101</b>
21	VFR Landing Pattern	3
22	Field Carrier Landing	3
22	Crosswind Landings	3
22	Full-Stop Landing	3+
22	No-HUD Landings	3+

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

1. Prerequisites

- a. FAM4304.
- b. FAM2201.
- c. OCF4101.
- d. NA1103 (NATOPS Closed-Book Exam and SOP Exam).

2. Syllabus Notes

- a. Bring FAM QA card to brief.
- b. Event shall be flown 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.
- d. Event shall **not** be flown with an on-wing instructor.
- e. Student shall have a minimum of 60 FCLP-type landings prior to FAM4490. If this requirement is not met, FAM4287 (ET) flights shall be awarded as necessary.
- f. Students shall complete the NATOPS open- and closed-book exams prior to FAM4490. Students shall present the graded open- and closed-book exams to their instructor prior to the brief.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and aircraft systems.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4490</b>
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	Takeoff	4+
10	Departure Procedure	4+
8	Course Rules	4+
28	Stall Series	4+
25	Vertical Recovery	4+
25	Min Radius Turn	3+
26	Aerobatics	3+
26	Squirrel Cage	3+
27	Unusual Attitude Recovery	4+
12	Descent/Field Entry	4+
20	Precautionary Approach(es)	4+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	3+
22	NF Touch-and-Go	3+
22	FF Roll-and-Go	3+
22	Crosswind Landings	3
23	Waveoff	3+
22	Full-Stop Landing	4+
22	No-HUD Landings	3+

Blk #	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, stalls, unusual attitudes, and vertical recoveries are prohibited maneuvers for solo students.

c. Event shall be flown with visual reference to the ground.

3. Special Syllabus Requirements. None.

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

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4501</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4
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
9	Takeoff	1
10	Departure Procedure	1
8	Course Rules	1
26	Aerobatics	1
26	Squirrel Cage	1
12	Descent/Field Entry	1
20	Precautionary Approach(es)	1
21	VFR Landing Pattern	1
22	Field Carrier Landing	1
22	Crosswind Landings	1
23	Waveoff	1
22	Full-Stop Landing	1

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

1. Prerequisite. FAM4501.
2. Syllabus Notes
  - a. May be flown anytime after FAM4501.
  - b. 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4601</b>
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	Takeoff	4+
10	Departure Procedure	4+
12	Descent/Field Entry	4+
20	Precautionary Approach(es)	4
21	VFR Landing Pattern	3+
22	Field Carrier Landing	3+
22	FF Roll-and-Go	3
22	Crosswind Landings	3
23	Waveoff	3
22	Full-Stop Landing	4+
22	No-HUD Landings	3+

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

1. Prerequisites

- a. FRM4501 prior to FAM4701.
- b. NFR2101 prior to FAM4702.

2. Syllabus Notes

- a. One of the events may be done at night.
- b. Events shall be flown with an LSO.
- c. FAM stage warmup criteria does not apply.
- d. Eight FCLP-type landings on each event are required to complete event.
- e. A precautionary approach is desired on each event.
- f. An overhead break is required on both of the events.

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FAM4702</b>
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	Takeoff	4+
10	Departure Procedure	4+
12	Descent/Field Entry	4+
20	Precautionary Approach	4
21	VFR Landing Pattern	4+
22	Field Carrier Landings	3+
22	NF Touch-and-Go	3+
22	FF Roll-and-Go	4+
22	Crosswind Landings	3
23	Waveoff	4
22	Full-Stop Landing	4+

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

1. Prerequisite. NFM1103A or NFM1103B (applicable Night FAM Procedures Exam).

2. Syllabus Notes

a. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on this event: inadvertent IMC.

b. Perform a touch-and-go landing without IFLOLS/FLOLS.

c. Entire route is not required to be flown.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and lost aircraft situations.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFM3101</b>
1	General Knowledge/Procedures	3+
2	Emergency Procedures	4+
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+
9	Takeoff	3+
10	Departure	3+
8	Course Rules	3+
13	Visual Navigation	3+
13	Dead Reckoning	3+
12	Descent/Field Entry	3+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	2+
22	FF Roll-and-Go	3+
22	Crosswind Landings	3
33 23	Waveoff	3+
22	Full-Stop Landing	3+

Blk #	Media	Title	Events	Hrs	H/X
NFM21	OFT	Night Familiarization Emergency Procedures	1	0.9	0.9

1. Prerequisite. NFM3101.
2. Syllabus Notes. The student will perform the following maneuvers IAW FTI, NATOPS, and SOP on this event: total electrical failure, trim malfunction in landing pattern, swerve on touchdown, night abort, pattern stall and recovery, and lost comm.
3. Special Syllabus Requirements. None.
4. Discuss Items. QOD, NORDO light signals, night Bingo considerations, airfield lighting, and cockpit fogging.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFM2101</b>
1	General Knowledge/Procedures	3+
2	Emergency Procedures	4+
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 Emergencies	3+
2	In-Flight Emergencies	3+
2	App/Landing Emergencies	3+
2	Landing Emergencies	3+
2	Lost Communications	3+
9	Takeoff	3+
10	Departure	3
8	Course Rules	3+
22	NF Touch-and-Go	3+
16 17	Instrument Approach (Low Oil)	3
22	No-Flap Landings	3+
28	Pattern Stall/Recovery	4+
22	Landing/Touch-and-Go	2+
2	Field Arrestment	4+

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

1. Prerequisite. NFM2101.

2. Syllabus Notes

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

b. Student shall perform at least one night break at the field in block.

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

3. Special Syllabus Requirements. None.

4. Discuss Items

NFM4101-2  
QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFM4102</b>
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	Takeoff	3+
10	Departure	3+
8	Course Rules	4+
13	Visual Navigation	4+
13	Dead Reckoning	4+
12	Descent/Field Entry	4+
21	VFR Landing Pattern	3+
22	Field Carrier Landing	3+
22	NF Touch-and-Go	3+
22	FF Roll-and-Go	3+
22	Crosswind Landings	3
33 23	Waveoff	4+
22	Full-Stop Landing	4+

Blk #	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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFM4201</b>
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	Takeoff	4+
10	Departure	4+
8	Course Rules	4+
13	Visual Navigation	4+
13	Dead Reckoning	4+
12	Descent/Field Entry	4+
21	VFR Landing Pattern	1
22	Field Carrier Landing	1
22	Crosswind Landings	1
33 23	Waveoff	1
22	Full-Stop Landing	1

Blk #	Media	Title	Events	Hrs	H/X
NFM43	T-45	Night Familiarization	1	0.8	0.8

1. Prerequisite. NFM4201.
2. Syllabus Note. A minimum of 10 field-carrier landings with an IFLOLS 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	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	Takeoff	4+
10	Departure	4+
12	Descent/Field Entry	4+
21	VFR Landing Pattern	4+
22	Field Carrier Landings	3+
22	FF Roll-and-Go	4+
22	Crosswind Landings	3
33 23	Waveoff	4
22	Full-Stop Landing	4+

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

1. Prerequisites

- a. FCL1103A or FCL1103B (applicable FCLP Exam).
- b. IR4290.
- c. NFM4102.
- d. DIV4201.
- e. FAM4601.
- f. FAM4701.

2. Syllabus Notes

- a. Minimum of 180 front-seat, FCLP-type landings, on the IFLOLS, are required to begin stage.
- b. FCL3101 shall be flown prior to FCL4201.
- c. Up to two FCL events may be flown per day.
- d. Student shall not participate in any other stage while training in FCL; however, FCL1101 and FCL4101 can be concurrent with another stage.
- e. Demonstrate CVN flight operations.

3. Special Syllabus Requirements. None.

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

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL3101</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
2	Swerve/Blown Tire on Landing	3+
2	Short-Field Arrestment	3+
2	Divert	3+
9	Takeoff	3+
10	Departure	3+
11	Enroute Navigation	3+
12	Descent/Field Entry	3+
28	Pattern Stall/Recovery	3+
34 22	FCLP Pattern	2+
34 22	Start Position	2+
34 22	AOA Control	2+
34 22	Glideslope Control	2+
34 22	Power Control	2+
34 22	Lineup Control	2+
34 22	Error Detection/Correction	2+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL3101</b>
34	Response to LSO Calls	2+
34 22	Bolter/Touch-and-Go Technique	2+
34 22	Field Carrier Landing	2+
34 23	Waveoff	3+
22	Full-Stop Landing	3+
2	Rejected Landing/Go-Around Scenario	3+

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

1. Prerequisites

- a. FCL1103A or FCL1103B (applicable FCLP Exam).
- b. IR4290.
- c. NFM4102.
- d. DIV4201.
- e. FAM4601.
- f. FAM4701.

2. Syllabus Notes

- a. FCL4101 shall be flown within two weeks of FCL4201.
- b. 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	4+
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.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL4101</b>
8	Flight Admin	4+
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4
12	Descent/Field Entry	4+
34 22	FCLP Pattern	3+
34 22	Start Position	3+
34 22	AOA Control	3+
34 22	Glideslope Control	3+
34 22	Power Control	3+
34 22	Lineup Control	3+
34 22	Error Detection/Correction	3+
34 22	Bolter/Touch-and-Go Technique	3+
34 22	Field Carrier Landing	3+
22	NF Touch-and-Go	3
22	FF Roll-and-Go	3+
34 23	Waveoff	3
22	Full-Stop Landing	4+

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

1. Prerequisites

- a. FCL3101.
- b. FCL4101.
- c. NFM4201.

2. Syllabus Notes

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

b. IP shall demonstrate proper waveoff technique and lineup adjustments.

c. No more than two FCL events shall be flown per day.

d. Student shall not participate in any other stage while training in FCL; however, FCL1101 and FCL4101 can be concurrent with another stage.

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

3. Special Syllabus Requirements. None.

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	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL4201</b>
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
9	Takeoff	3+
10	Departure	3+
11	Enroute Navigation	3+
12	Descent/Field Entry	3+
34 22	FCLP Pattern	3+
34 22	Start Position	2+
34 22	AOA Control	2+
34 22	Glideslope Control	2+
34 22	Power Control	2+
34 22	Lineup Control	2+
34 22	Error Detection/Correction	2+
34	Response to LSO Calls	2+
34 22	Bolter/Touch-and-Go Technique	2+
34 22	Field Carrier Landing	2+
34 23	Waveoff	3+
22	Full-Stop Landing	3+

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

1. Prerequisite. FCL4201.

2. Syllabus Notes

a. LSOs will evaluate and critique each individual pass as well as landing trends; landing grades are at the sole discretion of the LSOs. A maximum of two LSOs will instruct during the FCL stage.

b. For warmup requirements, see Chapter I, para 6.f.

c. For front-seat landing requirements, see Chapter I, para 11.b.(3).

d. Two night periods are desired in order to have a minimum of three night FCLP periods prior to CQL4390.

e. FCL4303 is the first period that may be flown at night.

f. A minimum of six FCLP-type passes are required on each flight, eight are desired.

g. Student shall not participate in any other stage while training in FCL43.

h. These events shall not be shotgunned for any reason.

3. Special Syllabus Requirements. None.

4. Discuss Items

FCL4301

QOD, pattern procedures, and arrestment procedures.

FCL4302

QOD, scan techniques, and Case I/II procedures.

FCL4303

QOD, glideslope corrections, and trend analysis.

FCL4304  
QOD and lineup correction.

FCL4305  
QOD and trend analysis.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL4305</b>
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	1
8	Flight Admin	1
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	1
12	Descent/Field Entry	4+
34 22	FCLP Pattern	4+
34 22	Start Position	4+
34 22	AOA Control	3+
34 22	Glideslope Control	3+
34 22	Power Control	3+
34 22	Lineup Control	3+
34 22	Error Detection/Correction	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL4305</b>
34	Response to LSO Calls	4+
34 22	Bolter/Touch-and-Go Technique	4+
34 22	Field Carrier Landing	3+
34 23	Waveoff	4+
22	Full-Stop Landing	4+

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

1. Prerequisite. FCL4303.
2. Syllabus Notes
  - a. FCL2101 shall be flown after FCL4303.
  - 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, ditching situations, and BINGO profile.
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.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL2101</b>
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	Divert	3+
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
12	Descent/Field Entry	4+
34 22	FCLP Pattern	3+
34 22	Start Position	2+
34 22	Bolter/Touch-and-Go Technique	3+
34 22	Field Carrier Landing	2+
34 23	Waveoff	3+
22	Full-Stop Landing	4

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

1. Prerequisites

- a. FCL4305.
- b. FCL2101.

2. Syllabus Notes

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

b. For warmup requirements, see Chapter I, para 6.f.

c. For front-seat landing requirements, see Chapter I, para 11.b.(3).

d. FCL4490 shall not be shotgunned for any reason.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD.

5. Block MIF

CTS REF	MANEUVER	FCL4490
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	1
8	Flight Admin	1

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FCL4490</b>
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	1
12	Descent/Field Entry	4+
34 22	FCLP Pattern	4+
34 22	Start Position	4+
34 22	AOA Control	3+
34 22	Glideslope Control	3+
34 22	Power Control	3+
34 22	Lineup Control	3+
34 22	Error Detection/Correction	3+
34	Response to LSO Calls	4+
34 22	Bolter/Touch-and-Go Technique	4+
34 22	Field Carrier Landing	3+
34 23	Waveoff	4+
22	Full-Stop Landing	4+

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 and Instrument Rating 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 MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Scheduling. Only one event per day shall be flown for the following blocks (lectures may be executed in addition to the specified events):

CO31 block  
BI31 block  
BI41 block

3. IR Notes

a. No more than 60 days shall elapse between completion of the IR1103 exam and successful completion of IR4290 or IR1101-3 shall be retaken.

b. Successful completion of IR4290 shall warrant issuance of a USN standard NATOPS instrument rating. If this NATOPS instrument rating will expire within 180 days of completion of the T-45 Combined Multi-Service Pilot Training System, the instrument rating process shall be updated prior to detaching. If flown to update an instrument rating, this may be flown in the OFT.

c. 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.

4. Cockpit Orientation/Emergency Procedures Stage MIF

█ Simulator/Device Event

<b>COCKPIT ORIENTATION/EMERGENCY PROCEDURES STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>CO3102</b>	<b>CO3202</b>	<b>EP2104</b>
1	General Knowledge/Procedures	3+	3+	3+
2	Emergency Procedures			3+
3	Headwork/Situational Awareness	3+	3+	3+
4	Basic Airwork		2+	2
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+
2	Gear EPs			3+
2	Electrical EPs			3+
2	Hydraulic EPs			3+
2	ECS EPs			3+
2	Fuel System EPs			3+
2	Ejection			3+
10	Departure	2+		
12	Descent/Field Entry	2+		
24	Turn Pattern		2+	
24	One-Half Standard Rate Turn (SRT)		2+	

MIF continued on next page.

<b>COCKPIT ORIENTATION/EMERGENCY PROCEDURES STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>CO3102</b>	<b>CO3202</b>	<b>EP2104</b>
24	Level Speed Change		2+	
24	Slow Flight Maneuver		2+	
24	S-1 Pattern		2+	
15	Penetration		2+	
17	TACAN Approach		2+	
16	PAR Approach		2+	

5. Basic Instruments Stage MIF

Simulator/Device Event

<b>BASIC INSTRUMENTS STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI3104</b>	<b>BI3205</b>	<b>BI4103</b>
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+
4	Partial Panel Airwork	2+	3+	3+
5	Mission Planning/Briefing/Debriefing	4+	4+	4+
6	Communications	3+	3+	3+
7	Ground Operations	3+	3+	3+
9	Takeoff	3+	3+	1
10	Departure	3+	3+	3+
11 24	Climbs/Descents	3+	3+	3+
11	Enroute Navigation	3+	3+	3+

MIF continued on next page.

<b>BASIC INSTRUMENTS STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI3104</b>	<b>BI3205</b>	<b>BI4103</b>
11	Intercept/Maintain Course	3+	3+	3+
11	Nonsystem Point-to-Point Navigation	2	2	2
11	Arcing	3+	3+	3+
24	Turn Pattern	3+	4+	4+
24	One-Half Standard Rate Turn	3+	4+	
24	Standard Rate Turn	3+	4+	
24	Level Speed Change	3+	4+	
24	Level Speed Change in One-Half SRT	3+	4+	
24	Slow Flight Maneuver	3+		
24	S-1 Pattern	3+	4+	
24	S-3 Pattern	3+	4+	4+
28	Stall Series		4+	3+
26	Wingover		3+	
26	Barrel Roll		3+	
27	Unusual Attitudes		4+	4+
27	Partial Panel Unusual Attitudes		4+	
15	High Altitude Penetration		3+	3+
17	TACAN/VOR DME Approach	3+	3+	3+
17 4	Partial Panel TACAN/VOR DME Approach		3+	
17	VOR Approach		3+	
17	ASR Approach		3+	3+
16	ILS Approach		3+	3
16 4	Partial Panel ILS Approach		3+	
16	PAR Approach	3+	3+	3
16 17 4	Partial Panel PAR Approach		3+	3+

MIF continued on next page.

<b>BASIC INSTRUMENTS STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI3104</b>	<b>BI3205</b>	<b>BI4103</b>
16	No-Gyro GCA		3+	3+
19	Missed Approach	3+	3+	3+
19 4	Partial Panel Missed Approach		3+	3+
	Special Syllabus Requirements			1

6. Radio Instruments Stage MIF

Simulator/Device Event

<b>RADIO INSTRUMENTS STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI3104</b>	<b>RI3204</b>	<b>RI4104</b>
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+
4	Partial Panel Airwork	3+	3+	3+
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+
9	Takeoff	3+	4+	1
10	Departure	3+	4+	4+
11 24	Climbs/Descents	3+		
11	Enroute Navigation		4+	3+
11	Intercept/Maintain Course	3+		

MIF continued on next page.

<b>RADIO INSTRUMENTS STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI3104</b>	<b>RI3204</b>	<b>RI4104</b>
11	Nonsystem Point-to-Point Navigation	3+	3+	3+
11	System Point-to-Point Navigation	3+	3+	3+
11	Arcing	3+		
14	Holding	3+	4+	4+
15	High Altitude Penetration	3+	4+	4+
17	TACAN/VOR DME Approach	3+	4+	3+
17 4	Partial Panel TACAN/VOR DME Approach	3+	3+	3+
17	VOR Approach		4	
17	ASR Approach	3+	4+	
17 4	Partial Panel ASR Approach			3+
16	ILS Approach	3+	4+	3+
16 4	Partial Panel ILS Approach	3+	3+	3+
16 4	PAR Approach	3+	4+	3+
16 4	Partial Panel PAR Approach	3+	3+	3+
17	Localizer Approach	3+		
17 4	Partial Panel Localizer Approach		3+	
17	Localizer Back Course Approach		3	
20	Low Oil Approach		3+	3+
20	Min/Emergency Fuel Approach	3+		3+
16	No-Gyro GCA	3+	3+	3+
18	Circling Approach		3+	1
18	Instrument-to-Visual Scan		3+	
19	Missed Approach	3+	4+	4+
19 4	Partial Panel Missed Approach	3+	3+	3+

7. Airways Navigation Stage MIF

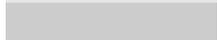
█ Simulator/Device Event

<b>AIRWAYS NAVIGATION STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>AN3106</b>	<b>AN2101</b>	<b>AN4104</b>
1	General Knowledge/Procedures	4+	4+	4+
2	Emergency Procedures	4+	4+	4+
3	Headwork/Situational Awareness	3+	3+	3+
4	Basic Airwork	4+	4+	4+
4	Partial Panel Airwork	4+	3+	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+	
9	Takeoff	4+	4+	4+
10	Departure	4+	4+	4+
11	Enroute Navigation	4+		4+
11	Nonsystem Point-to-Point Navigation	3+		3+
11	System Point-to-Point Navigation	3+		3+

MIF continued on next page.

<b>AIRWAYS NAVIGATION STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>AN3106</b>	<b>AN2101</b>	<b>AN4104</b>
1 8	Route/Destination Change	3+		3
14	Holding	4+		
12	Descent/Field Entry	4+	4+	4+
11	STAR	3+		3
16	Precision Approach	4+	4	4+
17	Non-Precision Approach	4+	4	4+
16 17 4	Partial Panel Approach	4+		4+
20	Min/Emergency Fuel Approach	4+		4+
20	Low Oil Approach	4+		4+
16	No-Gyro GCA	4+		4+
18	Circling Approach	3+		3+
18	Instrument-to-Visual Scan	3+		3+
19	Missed Approach	4+		4+
19 4	Partial Panel Missed Approach	4+		4+
22	Landing(s)	3		3+

8. Instrument Rating Stage MIF

 Simulator/Device Event  
 Check Flight Event

<b>INSTRUMENT RATING STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>IR3104</b>	<b>IR4102</b>	<b>IR4290</b>
1	General Knowledge/Procedures	4+	4+	4+
2	Emergency Procedures	4+	4+	4+
3	Headwork/Situational Awareness	4+	4+	4+
4	Basic Airwork	4+	4+	4+
4	Partial Panel 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+		
9	Takeoff	4+	1	1
10	Departure	4+	4+	4+
11	Enroute Navigation	4+	4+	4+
11	Nonsystem Point-to-Point Navigation	4+	4+	4
11	System Point-to-Point Navigation	4+	4+	4
1 8	Route/Destination Change	4+	4	4
14	Holding	4+	4	4
12	Descent/Field Entry	4+	4+	4+
11	STAR	4+	4	4
16	Precision Approach	4+	4+	4+
17	Non-Precision Approach	4+	4+	4+
16 17 4	Partial Panel Approach	4+	4+	4+

MIF continued on next page.

<b>INSTRUMENT RATING STAGE MANEUVER ITEM FILE</b>				
<b>CTS REF</b>	<b>MANEUVER</b>	<b>IR3104</b>	<b>IR4102</b>	<b>IR4290</b>
20	Min/Emergency Fuel Approach	4+		
20	Emergency Instrument Approach		4+	4+
20	Emergency Oil Approach	4+		
16	No-Gyro GCA	4+	4+	4
18	Circling Approach	4+		
19	Missed Approach	4+	4+	4+
19 4	Partial Panel Missed Approach	4+	4+	4+
18	Instrument-to-Visual Scan	4+		
22	Landing(s)	3		

Blk #	Media	Title	Events	Hrs	Blk Name
CR11	MIL	BI/RI Course Rules	1	1.0	CR1

1. Prerequisites. ASI0103-6.

2. Events

CR1101	MIL	BI/RI Course Rules		1.0	
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3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
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.

Blk #	Media	Title	Events	Hrs	Blk Name
ORM11	MIL	Operational Risk Management	1	1.0	ORM

1. Prerequisites. ASI0103-6.

2. Events

ORM1101 MIL Operational Risk Management 1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
SEA11	MIL/Lect	NACES Flight Physiology	2	3.0	SEAT

1. Prerequisite. ENG0128 (Engineering Block Exam).

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.

Blk #	Media	Title	Events	Hrs	Blk Name
CO11	CAI/MIL/ Lab	Cockpit Orientation	7	7.3	CO1

1. Prerequisites

- a. ENG0128 (Engineering Block Exam).
- b. CO3202 prior to CO1106-7.

2. Events

CO1101	CAI	Engine Start and Poststart		1.0
CO1102	CAI	Multifunction 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/Strap-in Procedures		1.5

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
EP11	MIL/CAI	Emergency Procedures	11	14.5	EP1
1.	<u>Prerequisite.</u>	ENG0128 (Engineering Block Exam II).			
2.	<u>Events</u>				
EP1101	MIL	Start, Ground, and Takeoff Emergency Procedures I		1.5	
EP1102	MIL	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	MIL	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	MIL	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.	<u>Syllabus Notes.</u>	None.			
4.	<u>Discuss Items.</u>	None.			

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

1. Prerequisites

- a. AER0107 (Aeronautics Block Exam).
- b. MET0104 (Meteorology Exam).
- c. NAV0109 (Instrument Navigation Exam).
- d. ENG0128 (Engineering Block Exam).

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	Basic Instrument Stage Exam Test		1.0	

3. Syllabus Note. No more than one BI simulator per day shall be scheduled during BI31.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
RI11	MIL/CAI/ Lect	Radio Instrument Flight Procedures	6	8.5	RIFP

1. Prerequisites

- a. BI3205.
- b. NAV0109 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	Radio Instrument Stage Exam Test		1.0	
RI1106	Lect	JMPS Enroute Flight Planning		3.0	

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
AN11	MIL	Airways Navigation Flight Procedures	1	2.0	ANFP
1.	<u>Prerequisite.</u>	FAM4490.			
2.	<u>Events</u>				
	AN1101	MIL	Airways Navigation Flight Procedures	2.0	
3.	<u>Syllabus Notes.</u>	None.			
4.	<u>Discuss Items.</u>	None.			

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

1. Prerequisite. AN1101 (Airways Navigation Flight Procedures).

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. No more than 60 days shall elapse between completion of the IR1103 exam and successful completion of IR4290 or IR1101-3 shall be retaken.

4. Discuss Items. None.

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

1. Prerequisites

- a. ASI0109 (Introduction to TIMS II).
- b. SEA1102 (Ejection Seat Lecture/NACES Preflight).
- c. CO1105 (Velocity Vector).

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. 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. Only one event per day shall be flown in block.

d. 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-foot 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-foot 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 (if applicable), ground signals, final checker, and shutdown signals.

CO3102

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

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CO3102</b>
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+
10	Departure	2+
12	Descent/Field Entry	2+

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

1. Prerequisites

- a. CO3102.
- b. BI1110 (Basic Instrument Stage Exam).

2. Syllabus Notes

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

b. CO32 block will meet currency requirements for the BI stage of training (lecture and simulators).

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

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

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

1. Prerequisites

- a. CO3202.
- b. ORM1101 (Operational Risk Management).
- c. CRM1101 (Crew Resource Management).
- d. EP1106 (Emergency Flight Procedures Exam I).
- e. EP1111 (Emergency Flight Procedures Exam II) 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 failure on takeoff, generator failure, inverter failure, total electrical failure, uncommanded RAT extension, HYD 1 EDP Failure, HYD 2 EDP failure, HYD 1 and 2 failure 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>EP2104</b>
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	2
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+

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

1. Prerequisites

- a. BI1110 (Basic Instrument Stage Exam).
- b. CR1101 (BI/RI Course Rules).
- c. EP2104.

2. Syllabus Notes

- a. S-3 pattern will not be flown until BI3103.
- b. Introduce partial panel during BI3104.
- c. During this block, students must fly at least two PAR approaches and two TACAN/VOR/DME approaches.
- d. C032 block will meet currency requirements for the BI stage of training (lecture and simulators).
- e. HUD/HUD Repeater shall not be used.
- f. Only nonsystem point-to-points will be practiced in this block.
- g. Only one event per day shall be flown in block.

3. Special Syllabus Requirements. None.

4. Discuss Items

BI3101-2

QOD, instrument scan, control instruments, performance instruments, and position instruments.

BI3103

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

BI3104

QOD and partial panel.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI3104</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
4	Partial Panel Airwork	2+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
9	Takeoff	3+
10	Departure	3+
11 24	Climbs/Descents	3+
11	Enroute Navigation	3+
11	Intercept/Maintain Course	3+
11	Nonsystem Point-to-Point Navigation	2
11	Arcing	3+
24	Turn Pattern	3+
24	One-Half Standard Rate Turn	3+
24	Standard Rate Turn	3+
24	Level Speed Change	3+
24	Level Speed Change in One-Half SRT	3+
24	Slow Flight Maneuver	3+
24	S-1 Pattern	3+
24	S-3 Pattern	3+
17	TACAN/VOR/DME Approach	3+
16	PAR Approach	3+
19	Missed Approach	3+

Blk #	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 (approaches may be combined, e.g., a Low Oil PAR may be logged as a PAR and a Low Oil Approach):

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

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

c. HUD/HUD repeater shall not be used.

3. Special Syllabus Requirements. None.

4. Discuss Items

BI3201-5  
QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI3205</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
4	Partial Panel Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
9	Takeoff	3+
10	Departure	3+
11 24	Climbs/Descents	3+
11	Enroute Navigation	3+
11	Intercept/Maintain Course	3+
11	Nonsystem Point-to-Point Navigation	2
11	Arcing	3+
24	Turn Pattern	4+
24	One-Half Standard Rate Turn	4+
24	Standard Rate Turn	4+
24	Level Speed Change	4+
24	Level Speed Change in One-Half SRT	4+
24	S-1 Pattern	4+
24	S-3 Pattern	4+
28	Stall Series	4+
26	Wingover	3+
26	Barrel Roll	3+
27	Unusual Attitudes	4+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI3205</b>
27	Partial Panel Unusual Attitudes	4+
15	High Altitude Penetration	3+
17	TACAN/VOR DME Approach	3+
17 4	Partial Panel TACAN/VOR DME Approach	3+
17	VOR Approach	3+
17	ASR Approach	3+
16	ILS Approach	3+
16 4	Partial Panel ILS Approach	3+
16	PAR Approach	3+
16 17 4	Partial Panel PAR Approach	3+
16	No-Gyro GCA	3+
19	Missed Approach	3+
19 4	Partial Panel Missed Approach	3+

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

1. Prerequisites

- a. BI3205.
- b. CO1107 (Aircraft Preflight/Strap-in Procedures).

2. Syllabus Notes

- a. Fly events from the rear cockpit with hood.
- b. BI4101 brief shall be 2+00 prior to scheduled takeoff.
- c. BI4101 and BI4103 shall be conducted within the local working area and include S-3 pattern, timed turns, stalls, unusual attitudes and partial panel.
- d. Only one event per day shall be flown in block.
- e. 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
- f. Only nonsystem point-to-points will be practiced in this block.
- g. During this block, students must fly at least the maneuvers listed below (approaches may be combined, e.g., a Low Oil PAR may be logged as a PAR and a Low Oil Approach):

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI4103</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
4	Partial Panel Airwork	3+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
9	Takeoff	1
10	Departure	3+
11 24	Climbs/Descents	3+
11	Enroute Navigation	3+
11	Intercept/Maintain Course	3+
11	Nonsystem Point-to-Point Navigation	2
11	Arcing	3+
24	Turn Pattern	4+
24	S-3 Pattern	4+
28	Stall Series	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>BI4103</b>
27	Unusual Attitudes	4+
15	High Altitude Penetration	3+
17	TACAN/VOR DME Approach	3+
17	ASR Approach	3+
16	ILS Approach	3
16	PAR Approach	3
16 17 4	Partial Panel PAR Approach	3+
16	No-Gyro GCA	3+
19	Missed Approach	3+
19 4	Partial Panel Missed Approach	3+
	Special Syllabus Requirements	1

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

1. Prerequisites

- a. BI4103.
- b. RI1105 (Radio Instrument Stage Exam).
- c. RI1106 (JMPS Enroute Flight Planning).

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. HUD/HUD Repeater shall not be used.

f. During this block, students must fly at least the approaches listed below (approaches may be combined, e.g., a Low Oil PAR may be logged as a PAR and a Low Oil Approach):

High Altitude Penetration Approach	1
TACAN/VOR DME	1 full panel
	1 partial panel
ASR	1
ILS	2 full panel
	1 partial panel
PAR	1 full panel
	1 partial panel
Localizer Approach	1
Min/Emergency Fuel Approach	1
No-Gyro GCA	1

3. Special Syllabus Requirements. None.

4. Discuss Items

RI3101

QOD, radial intercepts, and point-to-point navigation.

RI3102

QOD and MFD failure.

RI3103

QOD and minimum/emergency fuel GCA.

RI3104

QOD, lost communication, and enroute descent.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI3104</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
4	Partial Panel Airwork	3+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
9	Takeoff	3+
10	Departure	3+
11 24	Climbs/Descents	3+
11	Intercept/Maintain Course	3+
11	Nonsystem Point-to-Point Navigation	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI3104</b>
11	System Point-to-Point Navigation	3+
11	Arcing	3+
14	Holding	3+
15	High Altitude Penetration	3+
17	TACAN/VOR DME Approach	3+
17 4	Partial Panel TACAN/VOR DME Approach	3+
17	ASR Approach	3+
16	ILS Approach	3+
16 4	Partial Panel ILS Approach	3+
16 4	PAR Approach	3+
16 4	Partial Panel PAR Approach	3+
17	Localizer Approach	3+
20	Min/Emergency Fuel Approach	3+
16	No-Gyro GCA	3+
19	Missed Approach	3+
19 4	Partial Panel Missed Approach	3+

Blk #	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. HUD shall not be used except on RI3203-4, where HUD usage will be introduced by flying one precision and one non-precision approach.

f. RI3204 will introduce circle-to-land with HUD.

g. During this block, students must fly at least the approaches listed below (approaches may be combined, e.g., a low oil PAR may be logged as a PAR and a Low Oil Approach):

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 full panel
	1 partial panel
ASR	2 full panel
Localizer	1 partial panel
Low Oil Approach	2
Circle-to-Land Approach	1
No-gyro GCA	1

h. Student will perform the following:

RI3203-4  
HUD usage.

RI3204  
Circle-to-land with HUD.

3. Special Syllabus Requirements. None.

4. Discuss Items

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

RI3202-04  
QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI3204</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
4	Partial Panel Airwork	3+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
11	Nonsystem Point-to-Point Navigation	3+
11	System Point-to-Point Navigation	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI3204</b>
14	Holding	4+
15	High Altitude Penetration	4+
17	TACAN/VOR DME Approach	4+
17 4	Partial Panel TACAN/VOR DME Approach	3+
17	VOR Approach	4
17	ASR Approach	4+
16	ILS Approach	4+
16 4	Partial Panel ILS Approach	3+
16 4	PAR Approach	4+
16 4	Partial Panel PAR Approach	3+
17 4	Partial Panel Localizer Approach	3+
17	Localizer Back Course Approach	3
20	Low Oil Approach	3+
16	No-Gyro GCA	3+
18	Circling Approach	3+
18	Instrument-to-Visual Scan	3+
19	Missed Approach	4+
19 4	Partial Panel Missed Approach	3+

Blk #	Media	Title	Events	Hrs	H/X
RI41	T-45	Radio Instruments	4	6.4	1.6

1. Prerequisite. RI3204.

2. Syllabus Notes

a. Fly events from the rear cockpit with hood.

b. Students shall contact their instructor the day prior 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 (approaches may be combined, e.g., a Low Oil PAR may be logged as a PAR and a Low Oil Approach) :

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

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

RI4101-4

QOD, circle-to-land, and instrument-to-visual scan.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI4104</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
4	Partial Panel Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
9	Takeoff	1
10	Departure	4+
11	Enroute Navigation	3+
11	Nonsystem Point-to-Point Navigation	3+
11	System Point-to-Point Navigation	3+
14	Holding	4+
15	High Altitude Penetration	4+
17	TACAN/VOR DME Approach	3+
17 4	Partial Panel TACAN/VOR DME Approach	3+
17 4	Partial Panel ASR Approach	3+
16	ILS Approach	3+
16 4	Partial Panel ILS Approach	3+
16 4	PAR Approach	3+
16 4	Partial Panel PAR Approach	3+
20	Low Oil Approach	3+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>RI4104</b>
20	Min/Emergency Fuel Approach	3+
16	No-Gyro GCA	3+
18	Circling Approach	1
19	Missed Approach	4+
19 4	Partial Panel Missed Approach	3+

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

1. Prerequisite. AN1101 (Airways Navigation Flight Procedures).

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 AN stage simulators.

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

e. AN3105 will introduce a STAR.

f. During this block, students shall fly at least the approaches listed below (approaches may be combined, e.g., a Low Oil PAR may be logged as a PAR and a Low Oil Approach):

TACAN/VOR DME	2 full panel
	1 partial panel
VOR	1 full panel
	1 partial panel
ASR	2 full panel
ILS	4 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>AN3106</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
4	Partial Panel Airwork	4+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	4+
2	Lost Communications	4+
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
11	Nonsystem Point-to-Point Navigation	3+
11	System Point-to-Point Navigation	3+
1 8	Route/Destination Change	3+
14	Holding	4+
12	Descent/Field Entry	4+
11	STAR	3+
16	Precision Approach	4+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>AN3106</b>
17	Non-Precision Approach	4+
16 17 4	Partial Panel Approach	4+
20	Min/Emergency Fuel Approach	4+
20	Low Oil Approach	4+
16	No-Gyro GCA	4+
18	Circling Approach	3+
18	Instrument-to-Visual Scan	3+
19	Missed Approach	4+
19 4	Partial Panel Missed Approach	4+
22	Landing(s)	3

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

1. Prerequisite. AN3106.

2. Syllabus Notes

a. The HUD will be available for use.

b. 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>AN2101</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
4	Partial Panel Airwork	3+
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+
9	Takeoff	4+
10	Departure	4+
12	Descent/Field Entry	4+
16	Precision Approach	4
17	Non-Precision Approach	4

Blk #	Media	Title	Events	Hrs	H/X
AN41	T-45	Airways Navigation	4	6.4	1.6

1. Prerequisites

- a. AN2101.
- b. FAM4501.
- c. RI4104.

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 the day prior 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. A minimum of two flights, but no more than three, in block shall be flown from the front cockpit. **Instructors should note that front-cockpit night flights may be the student's first front-seat night landing in the T-45.** All other 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 (approaches may be combined where appropriate, e.g., a Low Oil PAR may be logged as a Low Oil and a Precision Approach):

Precision Approach	3 full panel 1 partial panel
Non-Precision Approach	3 full panel 1 partial panel
Low Oil Approach	1
Min/Emer Fuel Approach	1
No-Gyro GCA	1
Circle-to-Land	1 required

3. Special Syllabus Requirements. None.

4. Discuss Items

AN4101, AN4103, AN4104

QOD, in-flight emergencies, instrument-to-visual scan, night landings, and enroute descents.

AN4102

QOD, in-flight emergencies, fuel planning, lost communications, and route/destination change.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>AN4104</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	4+
4	Partial Panel Airwork	4+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	4+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>AN4104</b>
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
11	Nonsystem Point-to-Point Navigation	3+
11	System Point-to-Point Navigation	3+
1 8	Route/Destination Change	3
12	Descent/Field Entry	4+
11	STAR	3
16	Precision Approach	4+
17	Non-Precision Approach	4+
16 17 4	Partial Panel Approach	4+
20	Min/Emergency Fuel Approach	4+
20	Low Oil Approach	4+
16	No-Gyro GCA	4+
18	Circling Approach	3+
18	Instrument-to-Visual Scan	3+
19	Missed Approach	4+
19 4	Partial Panel Missed Approach	4+
22	Landing(s)	3+

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

1. Prerequisite. AN4104.

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/HUD Repeater shall not be utilized.

e. During this block, students must fly at least the approaches and maneuvers listed below (approaches may be combined, e.g., a Low Oil PAR may be logged as a PAR and a Low Oil Approach):

TACAN/VOR DME	2 full panel
	2 partial panel
VOR	1 full panel
ASR	1 partial panel
ILS	2 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

QOD and weather minimums required per OPNAVINST 3710.7.

IR3102  
QOD and PIREP.

IR3103  
QOD and enroute descent.

IR3104  
QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>IR3104</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
4	Partial Panel Airwork	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
2	Lost Communications	4+
9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
11	Nonsystem Point-to-Point Navigation	4+
11	System Point-to-Point Navigation	4+
1 8	Route/Destination Change	4+
14	Holding	4+
12	Descent/Field Entry	4+
11	STAR	4+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>IR3104</b>
16	Precision Approach	4+
17	Non-Precision Approach	4+
16 17 4	Partial Panel Approach	4+
20	Min/Emergency Fuel Approach	4+
20	Emergency Oil Approach	4+
16	No-Gyro GCA	4+
18	Circling Approach	4+
19	Missed Approach	4+
19 4	Partial Panel Missed Approach	4+
18	Instrument-to-Visual Scan	4+
22	Landing (s)	3

Blk #	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 these flights be conducted outside the local flying area 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 the day prior 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 shall be flown from the rear cockpit with hood installed.

f. During this block, students must fly at least the approaches listed below (approaches may be combined where appropriate, e.g., a Low Oil PAR may be logged as a Low Oil and a Precision Approach):

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>IR4102</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
4	Partial Panel Airwork	4+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Takeoff	1
10	Departure	4+
11	Enroute Navigation	4+
11	Nonsystem Point-to-Point Navigation	4+
11	System Point-to-Point Navigation	4+
1 8	Route/Destination Change	4
14	Holding	4
12	Descent/Field Entry	4+
11	STAR	4
16	Precision Approach	4+
17	Non-Precision Approach	4+
16 17 4	Partial Panel Approach	4+

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<b>CTS REF</b>	<b>MANEUVER</b>	<b>IR4102</b>
20	Emergency Instrument Approach	4+
16	No-Gyro GCA	4+
19	Missed Approach	4+
19 4	Partial Panel Missed Approach	4+

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

1. Prerequisites

- a. IR1103 (Instrument Rating Open-Book Exam).
- b. IR4102.

2. Syllabus Notes

- a. Event will be flown from the rear cockpit with hood installed.
- b. Event shall be flown in the local area, but must have at least one approach not at home field.
- c. No more than 60 days shall elapse between completion of the IR1103 exam and successful completion of IR4290 or IR1101-3 shall be retaken.
- d. Successful completion of this block shall warrant issuance of a USN standard NATOPS instrument rating. If this NATOPS instrument rating will expire within 180 days of completion of the T-45 Advanced E-2/C-2 training, the instrument rating process shall be updated prior to detaching. If flown to update an instrument rating, this may be flown in the OFT.
- 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 the day prior 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>IR4290</b>
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	4+
4	Partial Panel Airwork	4+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
9	Takeoff	1
10	Departure	4+
11	Enroute Navigation	4+
11	Nonsystem Point-to-Point Navigation	4
11	System Point-to-Point Navigation	4
1 8	Route/Destination Change	4
14	Holding	4
12	Descent/Field Entry	4+
11	STAR	4
16	Precision Approach	4+
17	Non-Precision Approach	4+
16 17 4	Partial Panel Approach	4+
20	Emergency Instrument Approach	4+
16	No-Gyro GCA	4
19	Missed Approach	4+
19 4	Partial Panel Missed Approach	4+

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Chapter VI

Navigation Training

This chapter does not apply to Advanced E-2/C-2 students.

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Chapter VII

Formation Training

1. Matrices. The following matrices are an overview of the Formation category. The category includes Formation, Night Formation, and Division Formation 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 MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Scheduling. FRM4102 shall not be flown with any other events (excluding lectures) on the same day.

3. Formation Stage MIF

 Simulator/Device Event

FORMATION STAGE MANEUVER ITEM FILE								
CTS REF	MANEUVER	FRM3103	FRM2101	FRM4106	FRM4201	FRM4301	FRM4402	FRM4501
1	General Knowledge/ Procedures	3+	3+	4+	4+	3+	4+	4+
2	Emergency Procedures	4+	4+	4+	4+	4+	4+	4+
3	Headwork/Situational Awareness	3+	3+	3+	3+	3+	4+	4+
4	Basic Airwork	3+	3+	4+	4+	3+	4+	4+
5	Mission Planning/ Briefing/Debriefing	3+	3+	4+	4+	3+	4+	4+
6	Communications	3+	3+	3+	3+	3+	4+	4+
7	Ground Operations	3+	3+	4+	4+	4+	4+	4+
8	Flight Admin	3+	3+	3+	1	3+	4+	1
2	Start Malfunctions		4+					
2	Ground Emergencies		4+					

MIF continued on next page.

FORMATION STAGE MANEUVER ITEM FILE								
CTS REF	MANEUVER	FRM3103	FRM2101	FRM4106	FRM4201	FRM4301	FRM4402	FRM4501
2	Aborted Takeoff		4+					
2	Takeoff Emergencies		4+					
2	Engine EPs		3+					
2	Flight Control EPs		3+					
2	Electrical EPs		3+					
2	ECS EPs		3+					
2	Fuel System EPs		3+					
29 9	Individual/Interval Takeoff	3+	3+	4+	4+	4+	4	4
29	Section Takeoff	3+					3+	3
10	Departure			4		4+	4	4+
12	Descent/Field Entry		3	4	4	3+	4	4
31	Parade	3+	3+	3+	3+		4+	4+
31	Turns/Echelon	3+	3+	3+	3+		4+	4+
31	Crossunder	3+		3+	3+		4+	4+
31	Lead Change			3+	3+	3+	4+	4+
31	TACAN Rendezvous	3+		3+	3+		4+	4
31	Breakup and Rendezvous	3+		3+	3+	3+	4+	4+
31	Underrun	3		3+	3		4+	4
31	Running Rendezvous	3+		3+	3+		4+	4
31	Cruise	3+					3+	3+
30	Formation Lead					3+	3+	
32	Lead Section Approach/ Missed Approach					3	3	
32	Section Approach/Missed Approach as Wing	3+	3	3+	3		4	4
32	Section Approach/ Touch-and-Go/Rejoin as Wing						3+	

MIF continued on next page.

<b>FORMATION STAGE MANEUVER ITEM FILE</b>								
<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM3103</b>	<b>FRM2101</b>	<b>FRM4106</b>	<b>FRM4201</b>	<b>FRM4301</b>	<b>FRM4402</b>	<b>FRM4501</b>
31	Section Break	3+		3+	3		4+	4
31	Section Break (Lead)					3		
20	Precautionary Approach	3+	3+	4+	1	3	4+	1
21	VFR Landing Pattern	3+	3	3+	1	3+	4+	1
22	Landing/Touch-and-Go	3+	2	3+	1	3+	3+	1

4. Division Formation Stage MIF

Simulator/Device Event

<b>DIVISION FORMATION STAGE MANEUVER ITEM FILE</b>			
<b>CTS REF</b>	<b>MANEUVER</b>	<b>DIV4104</b>	<b>DIV4201</b>
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+
29 9	Individual/Interval Takeoff	4	4
29	Section Takeoff	4	4
31	Division Rendezvous	3+	3+
31	Parade	3+	3+

MIF continued on next page.

<b>DIVISION FORMATION STAGE MANEUVER ITEM FILE</b>			
<b>CTS REF</b>	<b>MANEUVER</b>	<b>DIV4104</b>	<b>DIV4201</b>
31	Turns/Echelon	3+	3+
31	Crossunder	4+	4+
31	Section Crossunder	4+	4+
31	TACAN Rendezvous	4	4
31	Breakup and Rendezvous	4+	4+
31	Underrun	4	4
31	Running Rendezvous	4	4
31	Cruise	4+	4+
31	Shuffle Division	4+	4+
30	Formation Lead	3	
32	Lead Section Approach/Missed Approach	3	
32	Section Approach/Missed Approach as Wing	4	4
31	Section Break	4	4
31	Division Break	4+	4
20	Precautionary Approach	4+	1
21	VFR Landing Pattern	4+	1
22	Landing/Touch-and-Go	3+	1

5. Night Formation Stage MIF

Simulator/Device Event

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

MIF continued on next page.

<b>NIGHT FORMATION STAGE MANEUVER ITEM FILE</b>					
<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFR3101</b>	<b>NFR2101</b>	<b>NFR4102</b>	<b>NFR4201</b>
16 17	Instrument Approach		4	4	4
32	Section Approach	2+		4+	4+
32	Section Missed Approach	2+		4+	4+
32	Touch-and-Go/Rejoin			3+	
12	Descent/Field Entry	3	3+	4+	4+
31	Section Break	2+		4+	4
2	Field Arrestment		4+		
28	Pattern Stall/Recovery		4+		
21	VFR Landing Pattern	3+		4+	1
22	Landing/Touch-and-Go	2+	2+	3+	1

Blk #	Media	Title	Events	Hrs	Blk Name
FRM11	MIL/CAI	Section Formation Flight Procedures	6	5.5	FRM1
1.	<u>Prerequisite.</u>	FAM4501.			
2.	<u>Events</u>				
	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 Formation Exam I Test		1.0	
3.	<u>Syllabus Notes.</u>	None.			
4.	<u>Discuss Items.</u>	None.			

Blk #	Media	Title	Events	Hrs	Blk Name
DIV11	MIL/CAI	Division Formation Flight Procedures	2	2.5	FRM2
1.	<u>Prerequisite.</u>	FRM4201.			
2.	<u>Events</u>				
	DIV1101	MIL	Division Parade Formation	1.5	
	DIV1102	CAI	Formation Exam II	1.0	
		Test			
3.	<u>Syllabus Notes.</u>	None.			
4.	<u>Discuss Items.</u>	None.			

Blk #	Media	Title	Events	Hrs	Blk Name
NFR11	MIL/CAI	Night Formation Flight Procedures	2	2.2	NFR1
1.	<u>Prerequisite.</u>	FCL3101.			
2.	<u>Events</u>				
	NFR1101	MIL	Night Formation Flight Procedures	1.2	
	NFR1102	CAI Test	Night Formation Exam	1.0	
3.	<u>Syllabus Notes.</u>	None.			
4.	<u>Discuss Items.</u>	None.			

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

1. Prerequisite. FRM1106 (Formation Exam I).

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.

d. FRM3103 shall be flown after FRM4106 (exception: may be done prior to FRM4101 if doing FRM41 and FRM44 on a detachment).

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM3103</b>
1	General Knowledge/Procedures	3+
2	Emergency Procedures	4+
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+
29 9	Individual/Interval Takeoff	3+
29	Section Takeoff	3+
31	Parade	3+
31	Turns/Echelon	3+
31	Crossunder	3+
31	TACAN Rendezvous	3+
31	Breakup and Rendezvous	3+
31	Underrun	3
31	Running Rendezvous	3+
31	Cruise	3+
32	Section Approach/Missed Approach as Wing	3+
31	Section Break	3+
20	Precautionary Approach	3+
21	VFR Landing Pattern	3+
22	Landing/Touch-and-Go	3+

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

1. Prerequisite. FRM3103.
2. Syllabus Note. 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM2101</b>
1	General Knowledge/Procedures	3+
2	Emergency Procedures	4+
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	4+
2	Ground Emergencies	4+
2	Aborted Takeoff	4+
2	Takeoff Emergencies	4+
2	Engine EPs	3+
2	Flight Control EPs	3+
2	Electrical EPs	3+
2	ECS EPs	3+
2	Fuel System EPs	3+
29 9	Individual/Interval Takeoff	3+
12	Descent/Field Entry	3
31	Parade	3+
31	Turns/Echelon	3+
32	Section Approach/Missed Approach as Wing	3
20	Precautionary Approach	3+
21	VFR Landing Pattern	3
22	Landing/Touch-and-Go	2

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

1. Prerequisite. FRM3102.

2. Syllabus Notes

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

b. FRM4102 shall not be flown with any other events (excluding lectures) on the same day.

c. FRM4101 will be an IP demonstration, then student will accomplish flight.

d. During FRM4101, at a minimum, IP shall demonstrate the following maneuvers:

Marshal

Running rendezvous (SNA may accomplish at altitude)

Parade position with turns

2 box crossunders

1 breakup and rendezvous

Underrun

1 TACAN rendezvous

Lead change

e. On FRM4101, items demonstrated by the instructor shall not be graded. All other items may be graded, if maneuver performed.

f. Students shall fly at least 24 field-carrier landings within block. If requirement not met, fly FRM4187 to meet minimum (FRM4187 pattern work only). Lead is not required and only items related to field-carrier landings shall be graded. Add a comment to General Comments with above information included.

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

h. Student must have two interval takeoffs, two running rendezvous, and two formation breaks by the completion of FRM4105.

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

- VFR parade position and turns
- Box crossunders
- TACAN rendezvous
- Breakup and rendezvous (250)  
(5 required, in addition to TACAN rendezvous)
- Lead change
- Underrun

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

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

3. Special Syllabus Requirements. None.

4. Discuss Items

FRM4101-6  
QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM4106</b>
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	3+
7	Ground Operations	4+
8	Flight Admin	3+
29 9	Individual/Interval Takeoff	4+
10	Departure	4
12	Descent/Field Entry	4
31	Parade	3+
31	Turns/Echelon	3+
31	Crossunder	3+
31	Lead Change	3+
31	TACAN Rendezvous	3+
31	Breakup and Rendezvous	3+
31	Underrun	3+
31	Running Rendezvous	3+
32	Section Approach/Missed Approach as Wing	3+
31	Section Break	3+
20	Precautionary Approach	4+
21	VFR Landing Pattern	3+
22	Landing/Touch-and-Go	3+

Blk #	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 (250) - 5 required, in addition to TACAN rendezvous.
- d. TACAN rendezvous - 1.
- e. Must RTB as a section.

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM4201</b>
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	3+
7	Ground Operations	4+
8	Flight Admin	1
29 9	Individual/Interval Takeoff	4+
12	Descent/Field Entry	4
31	Parade	3+
31	Turns/Echelon	3+
31	Crossunder	3+
31	Lead Change	3+
31	TACAN Rendezvous	3+
31	Breakup and Rendezvous	3+
31	Underrun	3
31	Running Rendezvous	3+
32	Section Approach/Missed Approach as Wing	3
31	Section Break	3
20	Precautionary Approach	1
21	VFR Landing Pattern	1
22	Landing/Touch-and-Go	1

Blk #	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 to flight lead responsibilities and to provide additional landing practice.

b. Students may lead any dual 2-plane formation flight, except:

(1) If flown as lead for a FRM44, IP must be a qualified section lead and fly the cruise portion of the event.

(2) Shall not be flown with a FRM42 or FRM45.

(3) Shall not lead section takeoff. (It is not recommended that students lead FRM4404 because of this.)

c. Students may fly FRM4301 anytime after FRM4201.

d. The student shall brief conduct on FRM4301.

e. At a minimum, the student must fly four FCLP-type landings.

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

g. Must RTB as a section.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and flight lead responsibilities.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM4301</b>
1	General Knowledge/Procedures	3+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Communications	3+
7	Ground Operations	4+
8	Flight Admin	3+
29 9	Individual/Interval Takeoff	4+
10	Departure	4+
12	Descent/Field Entry	3+
31	Lead Change	3+
31	Breakup and Rendezvous	3+
30	Formation Lead	3+
32	Lead Section Approach/Missed Approach	3
31	Section Break (Lead)	3
20	Precautionary Approach	3
21	VFR Landing Pattern	3+
22	Landing/Touch-and-Go	3+

Blk #	Media	Title	Events	Hrs	H/X
FRM44	T-45	Cruise Formation	2	2.8	1.4

1. Prerequisite. FRM4201.

2. Syllabus Notes

a. Initial join-up must be accomplished via section takeoff.

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

Section takeoff  
Parade position with turns  
V crossunders  
Breakup and rendezvous - 2 x 250 and 2 x 300  
Cruise position and maneuvering  
(over-the-tops may be flown at IP discretion)  
Lead change

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

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

d. Section takeoff must be performed on FRM4402 in order to perform a section takeoff on FRM4501 solo.

3. Special Syllabus Requirements. None.

4. Discuss Items

FRM4401-2  
QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM4402</b>
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+
29 9	Individual/Interval Takeoff	4
29	Section Takeoff	3+
10	Departure	4
12	Descent/Field Entry	4
31	Parade	4+
31	Turns/Echelon	4+
31	Crossunder	4+
31	Lead Change	4+
31	TACAN Rendezvous	4+
31	Breakup and Rendezvous	4+
31	Underrun	4+
31	Running Rendezvous	4+
31	Cruise	3+
30	Formation Lead	3+
32	Lead Section Approach/Missed Approach	3

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM4402</b>
32	Section Approach/Missed Approach as Wing	4
32	Section Approach/Touch-and-Go/ Rejoin as Wing	3+
31	Section Break	4+
20	Precautionary Approach	4+
21	VFR Landing Pattern	4+
22	Landing/Touch-and-Go	3+

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

1. Prerequisite. FRM4402.

2. Syllabus Notes

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

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

c. Must RTB as a section.

d. Over-the-tops shall not be flown solo.

3. Special Syllabus Requirements. None.

4. Discuss Item. QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>FRM4501</b>
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	1
29 9	Individual/Interval Takeoff	4
29	Section Takeoff	3
10	Departure	4+
12	Descent/Field Entry	4
31	Parade	4+
31	Turns/Echelon	4+
31	Crossunder	4+
31	Lead Change	4+
31	TACAN Rendezvous	4
31	Breakup and Rendezvous	4+
31	Underrun	4
31	Running Rendezvous	4
31	Cruise	3+
32	Section Approach/Missed Approach as Wing	4
31	Section Break	4
20	Precautionary Approach	1
21	VFR Landing Pattern	1
22	Landing/Touch-and-Go	1

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

1. Prerequisites

- a. DIV1102 (Formation Exam II).
- b. FRM4501.

2. Syllabus Notes

a. A maximum of two flights in this block may be completed as three-plane flights. Either DIV4103 or DIV4104 must be flown as a four-plane.

b. 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).

- c. The following maneuvers shall be flown on every flight:

- Section crossunder
- Balanced parade and turns
- Breakup and rendezvous - 6 required  
(2 per position in a 4-plane,  
3 per position in a 3-plane)

- Division cruise
- Shuffle division
- Landings
- Precautionary approaches - 1 in block (2 desired)

3. Special Syllabus Requirements. None.

4. Discuss Items

DIV4101-4  
QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>DIV4104</b>
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+
29 9	Individual/Interval Takeoff	4
29	Section Takeoff	4
31	Division Rendezvous	3+
31	Parade	3+
31	Turns/Echelon	3+
31	Crossunder	4+
31	Section Crossunder	4+
31	TACAN Rendezvous	4
31	Breakup and Rendezvous	4+
31	Underrun	4
31	Running Rendezvous	4
31	Cruise	4+
31	Shuffle Division	4+
30	Formation Lead	3
32	Lead Section Approach/Missed Approach	3
32	Section Approach/Missed Approach as Wing	4
31	Section Break	4
31	Division Break	4+
20	Precautionary Approach	4+
21	VFR Landing Pattern	4+
22	Landing/Touch-and-Go	3+

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

b. 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>DIV4201</b>
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+
29 9	Individual/Interval Takeoff	4
29	Section Takeoff	4
31	Division Rendezvous	3+
31	Parade	3+
31	Turns/Echelon	3+
31	Crossunder	4+
31	Section Crossunder	4+
31	TACAN Rendezvous	4
31	Breakup and Rendezvous	4+
31	Underrun	4
31	Running Rendezvous	4
31	Cruise	4+
31	Shuffle Division	4+
32	Section Approach/Missed Approach as Wing	4
31	Section Break	4
31	Division Break	4
20	Precautionary Approach	1
21	VFR Landing Pattern	1
22	Landing/Touch-and-Go	1

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

1. Prerequisites
  - a. NFR1102 (Night Formation Exam).
  - b. FCL4490.
2. Syllabus Note. 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	4+
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+
9	Takeoff	4+
10	Departure	4+
31	Night TACAN Rendezvous	3+
31	Parade	2+
31	Crossunder	2+
31	Night Breakup and Rendezvous	2+
31	Night Underrun	2
31	Night Running Rendezvous	2+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFR3101</b>
32	Section Approach	2+
32	Section Missed Approach	2+
12	Descent/Field Entry	3
31	Section Break	2+
21	VFR Landing Pattern	3+
22	Landing/Touch-and-Go	2+

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

1. Prerequisite. NFR3101.
2. Syllabus Notes. None.
3. Special Syllabus Requirements. None.
4. Discuss Items. QOD, NORDO light signals, night Bingo considerations, airfield lighting, cockpit fogging, and pattern stall.
5. Block MIF

CTS REF	MANEUVER	NFR2101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Airwork	3+
5	Mission Planning/Briefing/Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	3+
2	Takeoff Emergencies	4+
2	Aborted Takeoff	4+
2	Electrical EPs	3+
2	In-Flight Emergencies	3+
2	Landing Emergencies	4+
2	Lost Communications	4+
9	Takeoff	4+
16 17	Instrument Approach	4
12	Descent/Field Entry	3+

MIF continued on next page.

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<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFR2101</b>
2	Field Arrestment	4+
28	Pattern Stall/Recovery	4+
22	Landing/Touch-and-Go	2+

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

1. Prerequisite. NFR2101.

2. Syllabus Notes

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

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

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

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

TACAN rendezvous - 2  
Breakup and 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) - 4

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFR4102</b>
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	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
31	Night TACAN Rendezvous	3+
31	Parade	3+
31	Crossunder	3+
31	Night Lead Change	3+
31	Night Breakup and Rendezvous	3+
31	Night Underrun	3
31	Night Running Rendezvous	3+
16 17	Instrument Approach	4
32	Section Approach	4+
32	Section Missed Approach	4+
32	Touch-and-Go/Rejoin	3+
12	Descent/Field Entry	4+
31	Section Break	4+
21	VFR Landing Pattern	4+
22	Landing/Touch-and-Go	3+

Blk #	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 flight shall take off no earlier than 30 minutes after official sunset.

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

c. Running rendezvous will be done at altitude.

d. Section approach may be simulated at altitude.

e. Section break is desired (weather permitting), but is not required.

f. Minimum of four FCLP-type landings.

3. Special Syllabus Requirements. None.

4. Discuss Items. QOD and night Bingo procedures.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>NFR4201</b>
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	Takeoff	1
10	Departure	1
11	Enroute Navigation	4+
31	Night TACAN Rendezvous	3+
31	Parade	3+
31	Crossunder	3+
31	Night Lead Change	3+
31	Night Breakup and CV Rendezvous	3+
31	Night Underrun	3
31	Night Running Rendezvous	3+
16 17	Instrument Approach	4
32	Section Approach	4+
32	Section Missed Approach	4+
12	Descent/Field Entry	4+
31	Section Break	4
21	VFR Landing Pattern	1
22	Landing/Touch-and-Go	1

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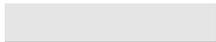
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Chapter VIII

Tactical Training

1. Matrices. The following matrix is an overview of the Tactical category. The category consists of the Carrier Qualification Landing stage. The purpose of this matrix is to provide the SNA and IP the easiest way to track progress, regression, and overall status in relation to MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. 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+	4+	4+	4+	4+	4+
2	Emergency Procedures	4+	4+	4+	4+	4+	4+
3	Headwork/Situational Awareness	4+	4+	4+	4+	4+	4+
4	Basic Airwork	4+	4+	4+	4+	4+	4+
5	Mission Planning/Briefing/Debriefing	4+	4+	4+	4+	4+	4+
6	Communications	4+	4+	4+	4+	4+	4+
7	Ground Operations	4+	4+	4+	4+	4+	4+
8	Flight Admin	4+	4+	4+	4+	4+	4+
2	Ground Emergencies			4	4+		
2	CV Emergencies			3+	4+		
2	Suspend Procedures				4+		
2	Brake Failure on Deck				4+		
2	Lost Communications at CVN				4+		

MIF continued on next page.

CARRIER QUALIFICATION LANDING STAGE MANEUVER ITEM FILE							
CTS REF	MANEUVER	CQL4101	CQL4211	CQL3102	CQL2101	CQL4390	CQL4490
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+		
29 9	Takeoff	4+	4+	4+	4+	4+	4+
10	Departure	4+	4+	4+	4+	4+	4+
11	Enroute Navigation	4+	4+			4+	4+
12	Descent/Field Entry	4+	4+	4+	4+	4+	4+
34	FCLP Pattern	4+	4+			4+	
33	CV Arrival (Case I/II)			3+	4+		4+
34	CV Pattern			3+	4+		4+
34	Start Position		4+	3+	3+	4+	4+
34	AOA Control		4+	2+	2+	4+	4+
34	Glideslope Control		4+	2+	2+	4+	4+
34	Power Control		4+	2+	2+	4+	4+
34	Lineup Control		4+	2+	2+	4+	4+
34	Error Detection/Correction		4+	2+	2+	4+	4+
34	Response to LSO Calls		4+	4+	4+	4+	4+
34	Bolter/Touch-and-Go Technique		4+	4+	4+	4+	4+
34	Waveoff Technique		4+	4+	4+	4+	4

MIF continued on next page.

<b>CARRIER QUALIFICATION LANDING STAGE MANEUVER ITEM FILE</b>							
<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL4101</b>	<b>CQL4211</b>	<b>CQL3102</b>	<b>CQL2101</b>	<b>CQL4390</b>	<b>CQL4490</b>
33	CVN Flight Deck Procedures			3+	4+		4+
33	Catapult Launch Procedures			3+	4+		4+
33	CVN Arrestment Procedures			3+	4+		4+
16	ILS to Visual Approach and Landing	3					
22	FF Roll-and-Go	4+					
22	FF Touch-and-Go	4+					
22	Full-Stop Landing	4+	4+			4+	1

Blk #	Media	Title	Events	Hrs	Blk Name
CQL11	MIL/CAI	Carrier Qualification Landing Flight Procedures	4	6.0	CQL1

1. Prerequisite. FCL4490.

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	Ship's Brief Exam Test		1.0	

3. Syllabus Notes. Students must have a total of 250 FCLP-type landings utilizing the IFLOLS in the T-45 prior to beginning Carrier Qualification Landing Stage (CQL4201).

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
CQL41	T-45	Night CQL Safe-for-Solo	1	0.7	0.7

1. Prerequisites

- a. NFR4201.
- b. NFM4301.
- c. FAM4702.

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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL4101</b>
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+
29 9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
12	Descent/Field Entry	4+
34	FCLP Pattern	4+
16	ILS to Visual Approach and Landing	3
22	FF Roll-and-Go	4+
22	FF Touch-and-go	4+
22	Full-Stop Landing	4+

Blk #	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 250 FCLP-type landings on the IFLOLS 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. CQL4201 shall be flown within two weeks of CQL4101.

b. Students shall not be scheduled in any other stage once they begin CQL4201.

c. One night FCL period under LSO control is required during CQL. A total of three night solo FCL periods (FCL and CQL) under LSO control must be flown prior to CQL43.

d. A minimum of six FCLP-type passes are required on each event (eight are desired).

e. All night CQL flights shall take off no earlier than 30 minutes after official sunset.

f. Up to three CQL events may be flown per day.

g. Landing grades are at the sole discretion of the LSOs.

h. Night CQL shall not be flown prior to CQL4203.

i. Only CQL events shall be scheduled from CQL4201 through the completion of CQL4490.

j. Blown Tire Exercise (BTX) shall be flown at half flaps between CQL4209-11.

k. These events shall not be shotgunned for any reason.

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, carrier pattern, and BTX.

CQL4210-11

QOD.

5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL4211</b>
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+
29 9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
12	Descent/Field Entry	4+
34	FCLP Pattern	4+
34	Start Position	4+
34	AOA Control	4+
34	Glideslope Control	4+
34	Power Control	4+
34	Lineup Control	4+
34	Error Detection/Correction	4+
34	Response to LSO Calls	4+
34	Bolter/Touch-and-Go Technique	4+
34	Waveoff Technique	4+
22	Full-Stop Landing	4+

Blk #	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 CQL events may be flown per day.
  - b. During CQL3101, demonstrate CVN flight operations with emphasis on field departure to shipboard recovery.
  - c. CQL3102 will continue shipboard procedures with emphasis on emergencies.
3. Special Syllabus Requirements. None.
4. Discuss Items

CQL3101

QOD, ship-to-shore checklist, Delta pattern (CV versus field), Case I arrival, shipboard alignment, Case I departure, use of IFLOLS in NORDO, Bingo, and waveoff situations.

CQL3102

QOD, preflight/ground operations, communications, CV terms and comm brevity, pattern entry, Case II arrival and Case II departure, 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.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL3102</b>
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	4+
7	Ground Operations	4+
8	Flight Admin	4+
2	Ground Emergencies	4
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+
29 9	Takeoff	4+
10	Departure	4+
12	Descent/Field Entry	4+
33	CV Arrival (Case I/II)	3+
34	CV Pattern	3+
34	Start Position	3+
34	AOA Control	2+
34	Glideslope Control	2+
34	Power Control	2+
34	Lineup Control	2+
34	Error Detection/Correction	2+
34	Response to LSO Calls	4+
34	Bolter/Touch-and-Go Technique	4+
34	Waveoff Technique	4+
33	CVN Flight Deck Procedures	3+
33	Catapult Launch Procedures	3+
33	CVN Arrestment Procedures	3+

Blk #	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 CQL events may be flown 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.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL2101</b>
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+
29 9	Takeoff	4+
10	Departure	4+
12	Descent/Field Entry	4+
33	CV Arrival (Case I/II)	4+
34	CV Pattern	4+
34	Start Position	3+
34	AOA Control	2+
34	Glideslope Control	2+
34	Power Control	2+
34	Lineup Control	2+
34	Error Detection/Correction	2+
34	Response to LSO Calls	4+
34	Bolter/Touch-and-Go Technique	4+
34	Waveoff Technique	4+
33	CVN Flight Deck Procedures	4+
33	Catapult Launch Procedures	4+
33	CVN Arrestment Procedures	4+

Blk #	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 CQL events may be flown 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

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL4390</b>
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+
29 9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
12	Descent/Field Entry	4+
34	FCLP Pattern	4+
34	Start Position	4+
34	AOA Control	4+
34	Glideslope Control	4+
34	Power Control	4+
34	Lineup Control	4+
34	Error Detection/Correction	4+
34	Response to LSO Calls	4+
34	Bolter/Touch-and-Go Technique	4+
34	Waveoff Technique	4+
22	Full-Stop Landing	4+

Blk #	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 a day touch-and-go/arrestment at the ship.
- d. A maximum of six carrier arrestments is permitted for CNATRA students per day. This is waivable 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 5 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. Conversely, LSO may disqualify a student with a GPA above 2.5 due to a decreasing trend or unsafe tendencies. Grading criteria is provided in Landing Signal Officer NATOPS Manual (NAVAIR 00-80T-104) and Carrier Qualification Flight Training Instruction (CNATRA P-1211).

- i. Landing grades are at the sole discretion of the LSOs.
  - j. Student solo flights may be launched with departure field weather between 500/2 and 1000/3 with the expressed consent of the Squadron CO or designated authority and CNATRA OIC.
3. Special Syllabus Requirements. None.
  4. Discuss Items. QOD and Carrier Qualification Landing procedures.
  5. Block MIF

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL4490</b>
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+
29 9	Takeoff	4+
10	Departure	4+
11	Enroute Navigation	4+
12	Descent/Field Entry	4+
33	CV Arrival (Case I/II)	4+
34	CV Pattern	4+
34	Start Position	4+
34	AOA Control	4+
34	Glideslope Control	4+
34	Power Control	4+
34	Lineup Control	4+

MIF continued on next page.

<b>CTS REF</b>	<b>MANEUVER</b>	<b>CQL4490</b>
34	Error Detection/Correction	4+
34	Response to LSO Calls	4+
34	Bolter/Touch-and-Go Technique	4+
34	Waveoff Technique	4
33	CVN Flight Deck Procedures	4+
33	Catapult Launch Procedures	4+
33	CVN Arrestment Procedures	4+
22	Full-Stop Landing	1

Chapter IX

Course Training Standards (CTS)

1. Purpose. These standards outline the tasks and proficiency required to graduate from 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	
<ul style="list-style-type: none"> <li>● A brief description of the behavior, required action, and/or conditions.</li> </ul>	<ul style="list-style-type: none"> <li>● The specific standards for the action. May be read as "The student aviator . . ."</li> </ul>

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	
<ul style="list-style-type: none"> <li>● Demonstrate knowledge of aircraft systems, procedures, and associated directives and instructions.</li> </ul>	<ul style="list-style-type: none"> <li>● Demonstrates a thorough understanding of aircraft systems capabilities, aircraft directives, and local procedures.</li> <li>● Knowledgeable of local working area WRT boundaries, altitudes, and significant landmarks without reference to in-flight guide or charts.</li> <li>● Demonstrates ability to apply procedures from all applicable source guidance.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
2. Emergency Procedures	
<ul style="list-style-type: none"> <li>● Recognize system malfunction and/or emergency situation.</li>   <li>● Perform NATOPS immediate action emergency procedures.</li>   <li>● Perform NATOPS noncritical action emergency procedures to include: <ul style="list-style-type: none"> <li>▶ Analysis of hypothetical aircraft malfunctions.</li> <li>▶ Simulated precautionary approaches and actual no-flap landings performed in the aircraft.</li> <li>▶ Life support training, survival, and physiological training IAW NATOPS.</li> </ul> </li> <li>● Lost communications</li> </ul>	<ul style="list-style-type: none"> <li>● Expeditiously analyzes situation and systems and recognizes malfunction or emergency situation.</li> <li>● Maintains control of aircraft while responding appropriately to malfunction/emergency.</li> <li>● Maneuvers aircraft smartly to prevent degradation of situation with respect to external factors such as weather, traffic, etc.</li> <li>● Verbally states emergency NATOPS immediate action items in sequence, from memory, without error.</li> <li>● Performs proper steps of emergency NATOPS immediate action items in sequence, from memory, without error.</li> <li>● Performs proper steps to a satisfactory conclusion, effectively using NATOPS PCL to troubleshoot or complete NATOPS procedures.</li> <li>● Incorporates effective CRM to secure additional assistance where applicable.</li> <li>● Maintains situational awareness WRT local area and airfields while troubleshooting systems/ responding appropriately to situation.</li> <li>● Successfully recovers aircraft to suitable airfield or recognizes extremis situation and initiates ejection within safe parameters.</li> <li>● Performs proper steps to a satisfactory conclusion, effectively using FIH to troubleshoot or complete lost communication procedures.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
3. Headwork/Situational Awareness	
<ul style="list-style-type: none"> <li>● Assess self and aircraft in relation to the dynamic environment of flight, threats, and mission forecast; then execute tasks based on this assessment.</li> <li>● Utilize CRM.</li> </ul>	<ul style="list-style-type: none"> <li>● Understands instructions, demonstrations, and explanations.</li> <li>● Remains alert and spatially oriented.</li> <li>● Correctly interprets in-flight events and applies strategies to proactively address them.</li> <li>● Recognizes and avoids channelized attention.</li> <li>● Effectively utilizes seven key skills of CRM throughout all portions of flight training.</li> </ul>
4. Basic Airwork	
<ul style="list-style-type: none"> <li>● Perform general aircraft control and composite/instrument cross-check as appropriate.</li> <li>● Perform general aircraft control and composite/instrument cross-check in a partial panel situation.</li> </ul>	<ul style="list-style-type: none"> <li>● Maintains smooth positive aircraft control at all times.</li> <li>● Ensures momentary deviations, ±5 seconds, do not exceed: <ul style="list-style-type: none"> <li>▶ Airspeed: ±5 percent.</li> <li>▶ Altitude: ±100 feet.</li> <li>▶ Heading: ±5 degrees.</li> <li>▶ Course: ±1 dot/½ scale.</li> <li>▶ AOA: ±1 unit.</li> </ul> </li> <li>● Avoids hazards (ground obstructions, terrain, other aircraft, and severe weather).</li> <li>● Smoothly transitions to/from partial panel instrument scan as situation dictates.</li> <li>● Maintains course, altitude, and glideslope with minor deviations and appropriate error corrections for entirety of approach.</li> <li>● Deviations do not jeopardize safety of flight.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
4. Basic Airwork (continued)	
<ul style="list-style-type: none"> <li>▶ Partial Panel Airwork</li> </ul>	<ul style="list-style-type: none"> <li>● Maintains positive control of the aircraft at all times with a smooth transition from full panel to partial panel scan.</li> <li>● Ensures momentary deviations <math>\pm 5</math> seconds, do not exceed:               <ul style="list-style-type: none"> <li>▶ Airspeed: <math>\pm 15</math> knots.</li> <li>▶ Altitude: <math>\pm 150</math> feet.</li> <li>▶ Heading: <math>\pm 10</math> degrees.</li> <li>▶ Course: <math>\pm 2</math> NM.</li> <li>▶ AOA: <math>\pm 1</math> unit.</li> </ul> </li> <li>● Deviations do not jeopardize safety of flight.</li> </ul>
5. Mission Planning/Briefing/Debriefing	
<ul style="list-style-type: none"> <li>● Perform appropriate mission planning to include route selection, weather, NOTAMS, fuel optimization, computing takeoff, climb, enroute, descent, approach, landing data, planning mission profile, and alternate course of action where appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>● Plans mission in a timely manner to meet training objectives, complete all applicable Navy and command forms correctly, and complies with all directives.</li> <li>● Applies OPNAVINST 3710.7U filing and approach criterion to planning and execution of flight.</li> <li>● Aware of alternatives available, if flight cannot be completed as planned.</li> </ul>



BEHAVIOR STATEMENT	STANDARDS
7. Ground Operations	
<ul style="list-style-type: none"> <li>● Inspect and wear appropriate flight equipment.</li> <li>● Perform exterior inspection, prestart and pretaxi checks to adhere to takeoff times within published tolerances.</li>   <li>● Coordinate checks with other aircrew for formation flight.</li> <li>● Perform taxi to/from runway.</li>   <li>● Complete "Instrument," "Before Takeoff," and "After Landing" checklists.</li> <li>● Perform the engine shutdown checklist.</li> <li>● Perform postflight inspection and administrative duties.</li> </ul>	<ul style="list-style-type: none"> <li>● Complies with NATOPS and command directives.</li>   <li>● Determines aircraft status and accepts or rejects aircraft based on NATOPS/command directives.</li> <li>● Completes required checks correctly.</li> <li>● Complies with NATOPS procedures and standardization tolerances.</li> <li>● Ensures clearance of line personnel, ground equipment, and other aircraft using appropriate signals prior to activation of aircraft systems.</li> <li>● Performs all checks, to include formation flight procedures IAW applicable directives.</li> <li>● Taxis at speeds commensurate with traffic and surface conditions, following prescribed route and giving way to other aircraft as appropriate.</li> <li>● Avoids hazards and ground obstructions.</li> <li>● Completes IAW NATOPS procedures.</li>   <li>● Completes IAW NATOPS procedures.</li>   <li>● Completes all postflight checks and administrative duties IAW NATOPS and applicable directives.</li> <li>● Thoroughly debriefs Maintenance Control on any aircraft discrepancies and ensures appropriate MAF filed.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
8. Flight Admin	
<ul style="list-style-type: none"> <li>● Perform in-flight planning and administrative functions, to include:               <ul style="list-style-type: none"> <li>▶ General.</li> <li>▶ Local course rules.</li> <li>▶ Area management.</li> <li>▶ Task management.</li> <li>▶ Fuel management.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Adjusts mission profile to comply with time/fuel limitations, as well as weather and area limits.</li> <li>● Complies with established routes, altitudes, and procedures for operating in local airspace environment.</li> <li>● Uses assigned airspace in an efficient manner with minimum delay between maneuvers.</li> <li>● Remains within area boundaries with or without ground references.</li> <li>● Prioritizes and accomplishes tasks in order of importance as it pertains to flight and mission accomplishment.</li> <li>● Properly utilizes mission cross-check time based on terrain/task load/personal performance.</li> <li>● Actively monitors fuel state throughout the mission.</li> <li>● Complies with all established fuel requirements.</li> <li>● Recognizes Joker or Bingo fuel within ±100 pounds of briefed quantity and makes timely call to IP/lead.</li> <li>● Regulates flight profile, throttle, and configuration to optimize fuel consumption as appropriate for the mission profile and training objectives.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
8. Flight Admin (continued)	
<ul style="list-style-type: none"> <li>▶ Weather planning.</li> <li>▶ In-flight checks.</li> <li>▶ Route/destination change.</li> </ul>	<ul style="list-style-type: none"> <li>● Recognizes and applies OPNAV/FLIP weather minima required for selected type of approach to field.</li> <li>● Completes all checklist items correctly and at proper point in mission, to include checking over other aircraft in the flight, IAW applicable directives.</li> <li>● Properly coordinates flight plan change through appropriate FSS or ATC facility using a DRAFT report or the IFR Supplement Change of Flight Plan formatting.</li> <li>● If necessary, obtains new weather report along route of flight and at destination field.</li> <li>● Calculates new fuel requirements along with time of flight.</li> </ul>
9. Takeoff	
<ul style="list-style-type: none"> <li>● Perform individual takeoff to include: <ul style="list-style-type: none"> <li>▶ Runup check.</li> <li>▶ Linespeed check.</li> <li>▶ Retracting gear/flaps.</li> <li>▶ Accelerating to climb airspeed.</li> </ul> </li> <li>● Transition to instruments as required.</li> </ul>	<ul style="list-style-type: none"> <li>● Maintains position during engine runup for static takeoff.</li> <li>● Maintains runway centerline ±5 feet during takeoff.</li> <li>● Rotates within -0 to +10 knots of computed rotation speed and maintains desired pitch attitude ±2 degrees.</li> <li>● Establishes and maintains proper takeoff attitude at appropriate airspeed for existing conditions.</li> <li>● Initiates gear and flap retraction when safely airborne and ensures fully retracted prior to exceeding 200 KIAS.</li> <li>● Properly transitions to flight instruments as required for actual or simulated weather conditions.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
10. Departure/Rendezvous	
<ul style="list-style-type: none"> <li>● Safely maneuver aircraft out of airfield environment. <ul style="list-style-type: none"> <li>▶ IFR.</li> <li>▶ VFR.</li> </ul> </li>   <li>● Interval departure/ rendezvous.</li> </ul>	<ul style="list-style-type: none"> <li>● Performs departure as published or directed.</li> <li>● Complies with all restrictions.</li> <li>● Achieves and maintains target climb schedule airspeeds <math>\pm 10</math> KIAS or 0.02 Mach at target altitudes <math>\pm 1,000</math> feet.</li> <li>● Initiates level-off at desired altitude using the 10-percent rule.</li> <li>● Promptly establishes cruise airspeed.</li> <li>● Accomplishes using proper procedures and techniques per Formation FTI.</li> </ul>
11. Enroute Navigation	
<ul style="list-style-type: none"> <li>● Perform enroute navigation to include: <ul style="list-style-type: none"> <li>▶ Climbs/Descents</li>   <li>▶ Intercept/Maintain course - perform VOR or TACAN course intercepts inbound, outbound, or immediately after station passage, and maintain VOR or TACAN course.</li> <li>▶ Arcing - Perform VOR/DME and TACAN radial-to-arc intercepts and maintain arcs.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Complies with basic airwork standards.</li> <li>● Compensates for known wind drift as required.</li> <li>● Maintains target airspeed <math>\pm 10</math> knots.</li> <li>● Levels off at desired altitude <math>\pm 100</math> feet using 10-percent rule.</li> <li>● Complies with all restrictions.</li> <li>● Establishes a valid intercept.</li> <li>● Maintains course <math>\pm 5</math> degrees/ 1 dot/<math>\frac{1}{2}</math> scale.</li>   <li>● Establishes valid arc intercept, utilizing appropriate lead turn as needed.</li> <li>● Maintains arc <math>\pm 0.2</math> mile.</li> <li>● Establishes valid arc-to-radial intercept.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
11. Enroute Navigation (continued)	
<p>▶ Nonsystem Point-to-Point.</p> <p>▶ System Point-to-Point.</p> <p>▶ STAR - Perform standard arrival (STAR) procedure IAW FLIP publication.</p>	<ul style="list-style-type: none"> <li>● Complies with basic airwork standards.</li> <li>● Compensates for known wind drift as required.</li> <li>● Maintains target airspeed ±10 knots.</li> <li>● Makes initial turn in the proper direction.</li> <li>● Performs steps to TACAN or VOR/DME point-to-point IAW Instrument NATOPS.</li> <li>● Corrects initial turn and maintains heading +10 degrees to arrive at the desired point ±0.5 NM.</li> <li>● Complies with basic airwork standards.</li> <li>● Compensates for known wind drift as required.</li> <li>● Maintains target airspeed ±10 knots.</li> <li>● Makes initial turn in the proper direction.</li> <li>● Enters proper fix and all required navigational information into GINA and proceeds direct using RNAV/TACAN waypoint offset procedures.</li> <li>● Arrives at the desired point ±0.2 NM.</li> <li>● Establishes valid course intercepts and maintains courses 1 dot/½ scale/±5 degrees.</li> <li>● Establishes valid arc/radial intercepts and maintains arcs ±0.5 mile.</li> <li>● Meets all altitude/airspeed restrictions.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
12. Descent/Field Entry	
<ul style="list-style-type: none"> <li>● Perform a descent and traffic entry, to include:               <ul style="list-style-type: none"> <li>▶ Climbs/descents enroute descent.</li> <li>▶ Climbs/descents max range descent.</li> <li>▶ Climbs/descents field break.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Executes as published or directed.</li> <li>● Complies with all restrictions and directives.</li> <li>● Analyzes internal and external factors to select most effective method of descent (enroute or max range).</li> <li>● Utilizes RADALT effectively to observe platform and subsequent altitude restrictions.</li> <li>● Observes "minute to live" rule (unless scenario or circumstances specifically dictate otherwise).</li> <li>● Establishes proper interval for pattern entry.</li> <li>● Maintains break altitude <math>\pm 100</math> feet until established on downwind.</li> <li>● Configures in adequate time to perform landing and AOA/airspeed checks prior to approach turn 90-degree position.</li> </ul>
13. Dead Reckoning Navigation	
<ul style="list-style-type: none"> <li>● Perform visual navigation procedures, to include chart interpretation.</li> </ul>	<ul style="list-style-type: none"> <li>● Identifies chart symbols with prominent landmarks along route. Navigates via dead reckoning or waypoint navigation, as applicable.</li> </ul>
14. Holding	
<ul style="list-style-type: none"> <li>● Perform high- and low-altitude VOR/TACAN holding as described by controller or IAW FLIP document.</li> </ul>	<ul style="list-style-type: none"> <li>● Performs published/standard entry procedures and maintains designated pattern IAW Instrument NATOPS and FTI.</li> <li>● Complies with holding pattern limits:               <ul style="list-style-type: none"> <li>▶ Uses proper voice procedures.</li> <li>▶ Maintains holding airspeed <math>\pm 5</math> KIAS.</li> </ul> </li> </ul>

BEHAVIOR STATEMENT	STANDARDS
15. High Altitude Penetration	
<ul style="list-style-type: none"> <li>● Perform a VOR, VOR/DME, or TACAN penetration (arc/radial intercept) from IAF to FAF, as published in FLIP document or local procedures.</li> </ul>	<ul style="list-style-type: none"> <li>● Complies with published penetration course, arc, and altitudes.</li> <li>● Complies with basic airwork standards.</li> <li>● Establishes valid intercept.</li> <li>● Maintains course <math>\pm 5</math> degrees/1 dot/<math>\frac{1}{2}</math> scale.</li> <li>● Establishes valid arc/radial intercepts.</li> <li>● Maintains arcs <math>\pm 0.5</math> NM.</li> </ul>
16. Precision Approach	
<ul style="list-style-type: none"> <li>● Perform precision approaches as published in FLIP document or local procedures, to include: <ul style="list-style-type: none"> <li>▶ ILS approach.</li> <li>▶ PAR approach. <ul style="list-style-type: none"> <li>▪ Normal PAR.</li> <li>▪ No-Gyro PAR.</li> <li>▪ Partial panel.</li> </ul> </li> <li>▶ Transition from one-half flap approach setting to full flaps for landing.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Complies with published approach and NATOPS procedures.</li> <li>● Maintains target AOA or final approach airspeed <math>\pm 1</math> unit AOA or <math>\pm 5</math> KIAS during final descent.</li> <li>● Arrives at DA in position to maintain a normal visual glidepath to the runway and land safely.</li> <li>● Maintains CDI and GSI within 1 dot/<math>\frac{1}{2}</math> scale deflection.</li> <li>● Maintains <math>\pm 3</math> degrees of assigned heading (except gyro out) and does not achieve multiple "well above" or "well below" glidepath calls.</li> <li>● Prior to DA, configures to full flaps and reviews landing checks complete to confirm the configuration change.</li> <li>● Recalculates and slows to the new full-flap target AOA or airspeed <math>\pm 1</math> unit AOA or <math>\pm 5</math> KIAS while maintaining appropriate glideslope to touchdown.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
17. Non-Precision Approach	
<ul style="list-style-type: none"> <li>● Perform non-precision, full panel, partial panel, or no-gyro approaches as published in FLIP document or local procedures, to include:               <ul style="list-style-type: none"> <li>▶ Localizer approach or BC localizer.</li> <li>▶ TACAN or VOR/DME approach.</li> <li>▶ ASR approach.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Complies with published approach and NATOPS procedures.</li> <li>● Arrives at and maintains MDA - 0/+100 feet at or prior to VDP.</li> <li>● Arrives in position to maintain a normal visual glidepath to the runway and land safely.</li> <li>● Begins timing within 5 seconds, if appropriate.</li> <li>● Maintains target AOA or final approach airspeed <math>\pm 1</math> unit AOA or <math>\pm 5</math> KIAS after FAF.</li> <li>● Maintains CDI within 1 dot/<math>\frac{1}{2}</math> scale deflection.</li> <li>● Maintains target AOA or final approach airspeed <math>\pm 1</math> unit AOA or <math>\pm 5</math> KIAS after FAF.</li> <li>● Maintains final approach course <math>\pm 1</math> dot/<math>\frac{1}{2}</math> scale/5 degrees.</li> <li>● Maintains target AOA or final approach airspeed <math>\pm 1</math> unit AOA or <math>\pm 5</math> KIAS during and after descent to MDA.</li> <li>● Maintains <math>\pm 3</math> degrees of assigned heading (except No-Gyro).</li> <li>● Does not exceed 1 call of "well left/right of course" and complies with controller's instructions in a timely manner.</li> <li>● Observes "minute to live" rule during descent to MDA.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
17. Non-Precision Approach (Continued)	
<ul style="list-style-type: none"> <li>▶ Transition from one-half flap approach setting to full flaps for landing.</li> </ul>	<ul style="list-style-type: none"> <li>● Prior to VDP or arriving in position to maintain a normal visual glide path to the runway, configures to full flaps and reviews landing checks complete to confirm the configuration change.</li> <li>● Recalculates and slows to the new full-flap target AOA or airspeed <math>\pm 1</math> unit AOA or <math>\pm 5</math> KIAS and then maintains appropriate glideslope to touchdown.</li> </ul>
18. Circling Approach/Maneuver	
<ul style="list-style-type: none"> <li>● Perform a circling approach and maneuver as published in FLIP document or local procedures.</li> </ul>	<ul style="list-style-type: none"> <li>● Accomplishes IAW Instrument FTI and Instrument NATOPS.</li> <li>● Prior to circling maneuver, maintains course and altitude IAW non-precision approach standards.</li> <li>● During maneuver, maintains circling MDA -0 feet, and maintains visual reference to the airport until acquiring visual glidepath.</li> <li>● Positions aircraft for a safe landing.</li> <li>● Once visual reference with the runway environment is acquired, appropriately transitions from an instrument scan to a visual scan while beginning the circling maneuver as published, as instructed by ATC, or in an appropriate manner to safely and efficiently execute the maneuver.</li> <li>● Remains within the clear zone for the approach category.</li> <li>● If required, executes appropriate missed approach instructions for the approach flown.</li> <li>● Executes circling maneuver on the appropriate side of the airfield.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
19. Missed Approach	
<ul style="list-style-type: none"> <li>● Perform a missed approach and partial panel missed approach.</li> <li>● Perform climbout for additional approaches.</li> </ul>	<ul style="list-style-type: none"> <li>● Complies with FLIP document and ATC instructions for missed approach or climbout instructions.</li> <li>● Completes IAW Instrument FTI and Instrument NATOPS.</li> </ul>
20. Precautionary Approach	
<ul style="list-style-type: none"> <li>● Perform precautionary approach IAW NATOPS, FTI and local SOP/course rules, to include: <ul style="list-style-type: none"> <li>▶ Overhead.</li> <li>▶ Abeam.</li> <li>▶ Straight-In.</li> </ul> </li> <li>● Performs precautionary instrument approach IAW NATOPS, FTI and local SOP/course rules, to include: <ul style="list-style-type: none"> <li>▶ Low oil approach.</li> <li>▶ Min/emer fuel approach.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Properly coordinates maneuver with ATC.</li> <li>● Effectively manages airspace for entry, including appropriate voice reports.</li> <li>● Effectively manages energy state via configuration and maintains profile without manipulation of throttle.</li> <li>● Utilizes target airspeed and altitude checkpoints (<math>\pm 15</math> knots, +300/-200 feet) to effectively maintain profile.</li> <li>● Manages flare adequately to touch down in first third of runway or prior to A-gear if required.</li> <li>● Safely achieves flight with flying airspeed, mil power, and speedbrakes retracted during touch-and-go.</li> <li>● Properly coordinates maneuver with ATC.</li> <li>● Effectively manages energy state via configuration to maintain adequate approach profile.</li> </ul>





BEHAVIOR STATEMENT	STANDARDS
22. Landing/Touch-and-Go (continued)	
<ul style="list-style-type: none"> <li>▶ Full-stop.</li> </ul>	<ul style="list-style-type: none"> <li>● Applies appropriate crosswind corrections and maintains runway alignment using aileron, rudder, and nosewheel steering.</li> <li>● Applies braking smoothly and effectively to meet deceleration schedule.</li> <li>● Adjusts braking to achieve appropriate line speeds.</li> </ul>
23. Waveoff	
<ul style="list-style-type: none"> <li>● Perform waveoff procedures.</li> </ul>	<ul style="list-style-type: none"> <li>● Immediately executes waveoff procedures when required or directed, maintaining landing attitude/AOA until safe climb established.</li> <li>● Maintains safe lateral separation from interval aircraft in VFR pattern.</li> </ul>
24. Basic Instrument Maneuvers	
<ul style="list-style-type: none"> <li>● Perform instrument training maneuvers as described in Instrument FTI or as directed, full or partial panel, to include: <ul style="list-style-type: none"> <li>▶ Climbs/descents.</li> <li>▶ Level speed changes.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Effectively utilizes power to maintain airspeed <math>\pm 10</math> knots.</li> <li>● Maintains target VSI <math>\pm 200</math> fpm.</li> <li>● Levels off at desired altitude <math>\pm 100</math> feet using 10-percent rule.</li> <li>● Maintains altitude <math>\pm 100</math> feet.</li> <li>● Achieves and maintains target airspeed <math>\pm 5</math> knots.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
24. Basic Instrument Maneuvers (Continued)	
<ul style="list-style-type: none"> <li>▶ Timed turns.</li>   <li>▶ Turn pattern.</li>   <li>▶ Vertical S maneuvers: <ul style="list-style-type: none"> <li>▪ S-1 pattern.</li> <li>▪ S-3 pattern.</li> </ul> </li>   <li>▶ Slow flight maneuver.</li> </ul>	<ul style="list-style-type: none"> <li>● Maintains standard or one-half standard turn rate to achieve desired heading change in appropriate time period, <math>\pm 5</math> seconds.</li> <li>● Uses indicated airspeed to appropriately determine AOB.</li> <li>● Monitors turn needle and adjusts AOB as required to maintain standard or one-half standard turn rate.</li> <li>● Effectively utilizes power to maintain airspeed <math>\pm 5</math> knots.</li> <li>● Maintains altitude <math>\pm 100</math> feet.</li> <li>● Performs turn reversals at target heading <math>\pm 5</math> degrees.</li> <li>● Maintains VSI <math>\pm 200</math> fpm.</li> <li>● Maintains <math>\pm 5</math> KIAS of desired airspeed.</li> <li>● Maintains AOB <math>\pm 5</math> degrees.</li> <li>● Reverses direction or level off <math>\pm 100</math> feet of desired altitude.</li> <li>● Maintains timing <math>\pm 5</math> seconds.</li> <li>● Makes timely and appropriate corrections for deviations.</li> <li>● Reconfigures aircraft at appropriate airspeed, maintaining <math>\pm 100</math> feet of target altitude.</li> <li>● Maintains target airspeed <math>\pm 5</math> knots or on-speed AOA <math>\pm 2</math> units once established.</li> <li>● Establishes target ROD <math>\pm 200</math> fpm.</li> </ul>



BEHAVIOR STATEMENT	STANDARDS
26. Aerobatics	
<ul style="list-style-type: none"> <li>● Perform instrument aerobatic maneuvers IAW Instrument FTI, to include: <ul style="list-style-type: none"> <li>▶ Aileron roll.</li> <li>▶ Wingover.</li> <li>▶ Barrel roll.</li> <li>▶ Loop.</li> <li>▶ One-half Cuban eight.</li> <li>▶ Immelmann.</li> <li>▶ Split-S.</li> </ul> </li>   <li>● Perform maneuvers listed above in visual environment IAW Familiarization FTI. In addition, perform squirrel cage.</li> </ul>	<ul style="list-style-type: none"> <li>● Verbalizes and attains target entry parameters (<math>\pm 5</math> knots, <math>\pm 100</math> feet) prior to beginning the maneuver.</li> <li>● Flies in a smooth, positive, and coordinated manner.</li> <li>● Achieves and maintains target g load <math>\pm 1</math> g and AOA <math>\pm 2</math> units during overhead maneuvers.</li> <li>● Executes rolling maneuvers at target attitude <math>\pm 5</math> degrees.</li> <li>● Exits maneuver at original entry parameters <math>\pm 200</math> feet, <math>\pm 10</math> knots, <math>\pm 10</math> degrees.</li> <li>● Plans maneuver entries to remain within area boundaries.</li> <li>● Ensures primary emphasis during aerobatic maneuvers is on use of outside references.</li> <li>● Efficiently links series of maneuvers.</li> </ul>
27. Unusual Attitude Recoveries	
<ul style="list-style-type: none"> <li>● Perform recoveries IAW appropriate FTI for: <ul style="list-style-type: none"> <li>▶ Nose-high recovery.</li>   <li>▶ Nose-low recovery.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Uses correct instrument flight references throughout recoveries.</li> <li>● Recovers to level flight expeditiously without stalling or exceeding aircraft limitations.</li> <li>● Recovers to level flight without excessive altitude loss, stall, or exceeding aircraft limitations.</li> <li>● Recovery is complete when the descent is stopped.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
28. Stall/OCF Recognition and Recovery	
<ul style="list-style-type: none"> <li>● Perform approaches to stall, full stalls, and recoveries IAW FTI, to include the following: <ul style="list-style-type: none"> <li>▶ Power-off stall.</li> <li>▶ Break turn stall.</li> <li>▶ Landing attitude maneuver.</li> <li>▶ Landing attitude stall.</li> <li>▶ Approach turn stall.</li> <li>▶ Accelerated stall.</li> </ul> </li>   <li>● Performs OCF maneuvers IAW FTI, to include: <ul style="list-style-type: none"> <li>▶ High AOA/deep stall investigation.</li> <li>▶ 70-/90-/110-degree departures.</li> <li>▶ Lateral stick adverse yaw departure.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Effectively trims aircraft for level flight/on-speed prior to commencing maneuver.</li> <li>● Maintains altitude <math>\pm 100</math> feet and VSI <math>0 \pm 200</math> fpm prior to stall.</li> <li>● Recognizes approach-to-stall indications and recovers IAW NATOPS and FTI procedures, with no loss of altitude (recovery complete when two positive rates of climb established).</li> <li>● Recognizes full-stall indications and recovers IAW NATOPS and FTI procedures with minimum loss of altitude <math>\leq 500</math> feet (recovery complete when two positive rates of climb established).</li> <li>● Prevents entry into secondary stall; recognizes secondary stall, if entered, and recovers properly.</li> <li>● Does not exceed gear/flap limitation airspeeds.</li> <li>● Demonstrates in-depth knowledge of NATOPS OCF procedures and prohibited maneuvers.</li> <li>● Correctly enters prescribed syllabus maneuvers per OCF FTI.</li> <li>● Correctly applies recovery control inputs and procedures per OCF FTI.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
29. Formation Takeoff	
<ul style="list-style-type: none"> <li>● Perform two- and four-ship takeoffs as Wing IAW Formation FTI, to include: <ul style="list-style-type: none"> <li>▶ Section takeoff.</li> <li>▶ Interval takeoff.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Positions aircraft in appropriate lane of runway <math>\pm 3</math> feet, on appropriate bearing line or "banana echelon."</li> <li>● Achieves target interval <math>\pm 1</math> second for brake release.</li> <li>● Maintains appropriate lane of runway <math>\pm 5</math> feet during takeoff roll.</li> <li>● Lifts off no earlier than lead and maintains <math>\pm 15</math> degrees of parade bearing.</li> <li>● Configures on lead's signal, making smooth, positive control inputs; signals clean at appropriate time.</li> <li>● Smoothly and expeditiously accelerates to appropriate rendezvous speed.</li> <li>● Initiates cross to inside of expected turn within 5 seconds of aircraft clean, but not before interval.</li> <li>● Upon reaching target airspeed, expeditiously puts lead/interval on the horizon.</li> <li>● Accomplishes timely rendezvous maintaining lead on horizon, IAW CV or running rendezvous standards.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
30. Formation Lead	
<ul style="list-style-type: none"> <li>● Perform two-ship formation as Lead IAW Formation FTI, to include: <ul style="list-style-type: none"> <li>▶ Departure.</li> <li>▶ Parade.</li> <li>▶ Lead change.</li> <li>▶ Breakup and rendezvous.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Complies with Formation FTI and course rules, considering airspace and weather to plan maneuvers.</li> <li>● Completes profile in a smooth manner without exceeding wingman's capabilities and without degrading flight safety.</li> <li>● Maintains a smooth, stable platform, avoiding abrupt power changes and maintaining &gt;80 percent rpm while monitoring -2.</li> <li>● Utilizes proper communications and signals as lead.</li> <li>● Maintains visual awareness of wingman.</li> <li>● Monitors wingman during initial joinup.</li> <li>● Communicates with ATC to effect joinup as necessary.</li> <li>● Accomplishes parade maneuvering up to 2 Gs and 45 degrees of bank.</li> <li>● Passes lead utilizing appropriate visual/voice/light signals.</li> <li>● 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.</li> <li>● Provides stable platform within BAW tolerances.</li> </ul>





BEHAVIOR STATEMENT	STANDARDS
31. Formation Wing (continued)	
<ul style="list-style-type: none"> <li>▶ Running rendezvous.</li>   <li>▶ TACAN rendezvous.</li>   <li>▶ Division rendezvous.</li>             <li>▶ Section break.</li>                   <li>▶ Division break.</li> </ul>	<ul style="list-style-type: none"> <li>● Maintains situational awareness to all aircraft ahead with safe separation and closure to lead/interval.</li>   <li>● Maintains proper step-down ±150 feet below lead's altitude until on bearing line.</li> <li>● Properly utilizes communication to control lead's lighting at night.</li>   <li>● Expeditiously establishes aircraft on lead's altitude.</li> <li>● Positively corrects to bearing line and maintains a consistent controlled rate of closure throughout.</li> <li>● During breakup and rendezvous, does not exceed maximum AOB for position per the FTI.</li> <li>● Executes crossunder per the FTI at a speed that the aircraft could safely join into an open slot between two aircraft.</li>   <li>● Establishes aircraft in FTI parade position prior to the numbers or as briefed.</li> <li>● Sets the briefed interval.</li> <li>● Keeps lead on horizon.</li> <li>● Arrives in trail of lead while configuring aircraft for landing.</li>   <li>● Established in FTI parade prior to the numbers or as briefed.</li> <li>● Dash 2 sets the briefed interval.</li> <li>● Dash 3 and 4 match break interval.</li> <li>● Keeps lead on the horizon throughout break.</li> <li>● Arrives in trail of preceding aircraft while configuring aircraft for landing.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
31. Formation Wing (continued)	
<ul style="list-style-type: none"> <li>▶ Underrun.</li>   <li>▶ Lead change.</li> </ul>	<ul style="list-style-type: none"> <li>● Recognizes unsafe or excessive parameters and expeditiously initiates maneuver.</li> <li>● Immediately responds to underrun command given by lead or IP.</li> <li>● Day: Expeditiously arrives at perch position as defined in FTI <math>\pm 50</math> feet.</li> <li>● Night: Arrives outside lead's turn at 500 feet (<math>\pm 100</math> feet) below lead's altitude.</li> <li>● Refuses or assumes lead within two seconds of initiation, using appropriate visual/voice/light signals.</li> <li>● Maintains target altitude <math>\pm 100</math> feet and airspeed <math>\pm 5</math> knots while acting as lead.</li> <li>● Passes lead utilizing appropriate visual/voice/light signals.</li> <li>● Positively maneuvers aircraft to establish wingtip separation <math>-0/+10</math> feet and step-down <math>\pm 5</math> feet, and no further aft than cruise bearing line IAW FTI.</li> </ul>
32. Formation Approach/Missed Approach/Touch-and-Go Rejoin	
<ul style="list-style-type: none"> <li>● Perform two-ship approach procedures while at altitude or under controlling agency as: <ul style="list-style-type: none"> <li>▶ Section lead.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Complies with approach procedures and standards being flown.</li> <li>● Lands in center of appropriate side of the runway.</li> <li>● Maintains runway alignment after landing.</li> <li>● Detaches wingman at appropriate time in a safe position for landing.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
32. Formation Approach/Missed Approach/Touch-and-Go Rejoin (continued)	
<ul style="list-style-type: none"> <li>▶ Section wing.</li> </ul>	<ul style="list-style-type: none"> <li>● Performs landing checklist prior to signaling lead, and signals lead at appropriate time.</li> <li>● Properly manages configuration and energy state to effect safe landing when detached.</li> <li>● Rejoins safely and expeditiously within two miles during touch-and-go/rejoin.</li> <li>● Maintains parade position parameters IAW Formation FTI during missed approach, matching lead's configuration changes via hand or radio signals.</li> </ul>
33. CVN Operations	
<ul style="list-style-type: none"> <li>● Safely operate T-45 in and around aircraft carrier.</li> </ul>	<ul style="list-style-type: none"> <li>● Properly controls and maneuvers aircraft IAW T-45 NATOPS, CV NATOPS, and FTI procedures.</li> </ul>
34. LSO-Controlled Landing	
<ul style="list-style-type: none"> <li>● Perform graded carrier landing under LSO control to field carrier box or CV landing area, to include following: <ul style="list-style-type: none"> <li>▶ CV pattern.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Executes FCLP or CV pattern entry from takeoff or catapult launch IAW CV NATOPS and FTI.</li> <li>● Maintains pattern altitude on downwind ±50 feet.</li> <li>● Makes appropriate crosswind correction on downwind to arrive at proper abeam distance.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
34. LSO-Controlled Landing (Continued)	
<ul style="list-style-type: none"> <li>▶ CV pattern (Cont).</li>   <li>▶ Start position.</li>   <li>▶ AOA control.</li>   <li>▶ Glideslope control.</li>   <li>▶ Power control.</li>   <li>▶ Lineup control.</li>   <li>▶ Error detection/correction.</li>   <li>▶ Response to LSO calls.</li>   <li>▶ Bolter/touch-and-go technique.</li>   <li>▶ Waveoff technique.</li> </ul>	<ul style="list-style-type: none"> <li>● Initiates approach turn w/appropriate extension off abeam to achieve proper groove length.</li> <li>● Manages energy state and makes timely corrections to deviations around approach turn without assistance.</li> <li>● Intercepts acceptable glideslope, centerline and groove length without LSO assistance.</li> <li>● Maintains on-speed with only minor deviations (<math>\pm 1</math> unit).</li> <li>● Maintains glidepath with average deviations and corrections without LSO assistance.</li> <li>● Controls throttle movements for proper correction of glidepath deviations without LSO assistance.</li> <li>● Intercepts and tracks centerline with average deviations and corrections without LSO assistance.</li> <li>● Detects and corrects in a timely manner deviations in glidepath, lineup, and AOA without assistance.</li> <li>● Responds in a safe and timely manner to glidepath, power, attitude, lineup, and waveoff calls from LSO.</li> <li>● Simultaneously moves throttle to MRT, while retracting speed brakes and rotates to optimum AOA immediately upon touchdown and without LSO assistance.</li> <li>● Immediately executes waveoff procedures when required or directed.</li> </ul>

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Chapter X

Master Materials List

1. Individually Issued Materials

	TITLE	IDENTIFICATION	QTY PER STUDENT
a.	T-45 E-2/C-2 Advanced MPTS Flight Training Curriculum	CNATRAINST 1542.176	1
b.	Flight Training Instructions (FTI)	CNATRA PAT PUB P-1204 through P-1289 as applicable	9
c.	DOD FLIP Publications		
	(1) Enroute IFR Supplement U.S.		3
	(2) Enroute High Altitude Chart		6
	(3) Terminal High Altitude Instrument Approach Procedures		6
d.	TRAWING In-Flight Guide	Locally produced/issued	
e.	Aviation Training Jacket	CNATRA-GEN 1542/10A	1
f.	Pilot Training Summary	CNATRA 1542/95	1
g.	Jacket Review	CNATRA-GEN 1542/66	1

TITLE	IDENTIFICATION	QTY PER STUDENT
j. Academic Lesson Guides		
(1) Aviation Student Indoc (ASI)	CNATRA P-1277	1
(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) Instrument Rating Flight Procedures	CNATRA P-1245	1

2. Support Materials

TITLE	IDENTIFICATION	QUANTITY
a. T-45C NATOPS Flight Manual	NAVAIR A1-T45AC-NFM-000	255
b. T-45C Pocket Checklist	NAVAIR A1-T45AC-NFM-500	255
c. T-45C NATOPS Flight Manual (performance charts)	NAVAIR A1-T45AC-NFM-300	255
d. NATOPS Instrument Flight Manual	Stock No. 0437LP9001019	50
e. NATOPS General Operating Instruction	OPNAVINST 3710.7U	25
f. Aeronautical Information Manual (AIM)	FAA Publication	100

TITLE	IDENTIFICATION	QUANTITY
g. Flight Clothing	(Identification and quantity listed in CNATRAINST 10126.1; cost listed in NAVSUP PUB. 4100.)	
h. Aviation Training Forms are generated by the Training Integration Management System (TIMS).		
i. T-45C Standard Operating Procedures (SOP)	COMTRAWINGONEINST 3710.7T/ COMTRAWINGTWOINST 3710.7R (Locally produced/issued)	1
j. Lecture Guides	CNATRA PAT PUBS	18

3. Aircraft and Major Training Devices

TITLE	IDENTIFICATION
a. Aircraft	T-45C
b. Instrument Flight Trainer (IFT) Nonvisual Simulator	Device 2F137 or 2F137C
c. Operational Flight Trainer (OFT) Visual Simulator	Device 2F138C, D, or E

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