NAVAL AIR TRAINING COMMAND

NAS CORPUS CHRISTI, TEXAS
CIN Q-2A-8168, Q-2A-3168, Q-2A-4168,
Q-2A-9168, and Q-2A-6168

CNATRAINST 1542.168
22 JUL 2016

CHIEF OF NAVAL AIR TRAINING

T-44C ADVANCED MULTI-ENGINE MPTS

2016

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

CNATRAINST 1542.168
N713
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CNATRA INSTRUCTION 1542.168

Subj: T-44C ADVANCED MULTI-ENGINE Multi-Service Pilot Training System

1. Purpose. To publish the curriculum for training Student Military Aviators in the Advanced Multi-Engine phase of Naval Air Training Command (NATRACOM) flight training.

2. Cancellation. None.

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

4. Forms. The CNATRA Forms required by this instruction are automated in the Training Integration Management System (TIMS) computer program. Additional CNATRA forms are available on the CNATRA Web site https://www.cnatra.navy.mil/pubs/forms.htm.

D. M. EDGECOMB
Chief of Staff

Distribution:
CNATRA Website

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CHAPTER IX. COURSE TRAINING STANDARDS

SUMMARY OF CHANGES

CHANGE NUMBER	DATE OF CHANGE	CHANGE DESCRIPTION	PAGES AFFECTED/ INITIALS

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COURSE DATA

1. Course Title. T-44C Advanced Multi-Engine Multi-Service Pilot Training System (MPTS).

2. Course ID Number (CIN). USN P-3/P-8, Q-2A-8168; USMC C-130, Q-2A-3168; USCG, Q-2A-4168; Tiltrotor, Q-2A-9168; and E-6, Q-2A-6168.

3. Location. Naval Air Station, Corpus Christi, Texas 78419.

4. Course Status. Active.

5. Course Mission. The mission of Advanced Multi-Engine MPTS is to develop proficiency in multi-engine flight, advanced instruments, Crew Resource Management/pilot-in-command proficiency, and track-specific tactics. At the successful completion of this phase of aviation training, the flight student will be designated a Naval Aviator qualified in multi-engine aircraft, and will have earned a standard instrument rating.

6. Prerequisite Training. Successful completion of T-6B Joint Primary Pilot Training (Q-2A-0416 or Q-2A-0417); for Tiltrotor, successful completion of Intermediate Tiltrotor Helicopter MPTS curriculum (Q-2C-9298).

7. Security Clearance Required. None.

8. Follow-on Training. As required by each service for each specific assignment.

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.

	Training Days	Calendar Weeks
a. USN P-3/P-8	94.8	21.0
b. USMC C-130	102.6	22.8
c. USCG	94.8	21.0
d. Tiltrotor	102.6	22.8
e. E-6	94.8	21.0

10. Class Capacity. Variable.

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

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

13. Quota Management Authority. Chief of Naval Air Training.

14. Quota Control. Chief of Naval Operations.

15. Course Training Subjects

a. Ground Training

USN P-3/P-8, USCG, AND E-6		
Subject	**Symbol**	**Hours**
Indoctrination	G01	4.10
Instrument Flight Rules	G02/G08	70.50
Systems	G03	32.50
Aerodynamics	G04	24.50
Flight Procedures	G06	11.75
Crew Resource Management	G07	2.00
Total		**145.35**

USMC C-130/TILTROTOR		
Subject	**Symbol**	**Hours**
Indoctrination	G01	4.10
Instrument Flight Rules	G02/G08	70.50
Systems	G03	32.50
Aerodynamics	G04	24.50
Visual Navigation	G05	11.00
Flight Procedures	G06	11.75
Crew Resource Management	G07	2.00
Total		**156.35**

b. Flight Support

ALL SERVICES		
Subject	**Symbol**	**Hours**
Contact Brief	C01	5.0
Instrument Brief/Flight Management System	I01	9.0
Total		**14.0**

USN P-3/P-8 and E-6		
Subject	**Symbol**	**Hours**
Maritime Formation Procedures	F01	1.0
Aerial Refueling Procedures	F02	1.0
Total		**2.0**

USMC C-130		
Subject	**Symbol**	**Hours**
Joint Mission Planning System	N01	16.0
Low-Level Ground School	N02	1.0
Maritime Formation Procedures	F01	1.0
Tactical Formation Ground School	T01	3.0
Total		**21.0**

USCG		
Subject	**Symbol**	**Hours**
Maritime Formation Procedures	F01	1.0
Total		**1.0**

TILTROTOR		
Subject	**Symbol**	**Hours**
Joint Mission Planning System	N01	16.0
Low-Level Ground School	N02	1.0
Aerial Refueling Procedures	F02	1.0
Tiltrotor Formation	F03	1.0
Tactical Formation Ground School	T01	3.0
Total		**22.0**

c. Flight Training. Below are the programmed times for each phase, stage, and media:

USN P-3/P-8								
Flight/Events	**UTD**		**OFT**		**T-44C**			
					Dual		**Solo**	
	Flts	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**
Procedure Trainer	5	7.5						
Contact			3	4.5	10	18.0	1	0.3
Contact Check Ride					1	1.5		
Night Contact			1	1.0	2	3.0		
Instruments	6	9.0	15	22.5	15	38.0	1	2.0
Midstage Instrument Check			1	1.5				
NATOPS Instrument Check Ride					1	1.8		
Navigation					1	2.0		
Maritime Formation and Aerial Refueling Fundamentals					1	3.0		
Totals	**11**	**16.5**	**20**	**29.5**	**31**	**67.3**	**2**	**2.3**

USMC C-130								
Flight/Events	**UTD**		**OFT**		**T-44C**			
					Dual		**Solo**	
	Flts	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**
Procedure Trainer	5	7.5						
Contact			3	4.5	10	18.0	1	0.3
Contact Check Ride					1	1.5		
Night Contact			1	1.0	2	3.0		
Instruments	6	9.0	15	22.5	15	38.0	1	2.0
Midstage Instrument Check			1	1.5				
NATOPS Instrument Check Ride					1	1.8		
Navigation			1	1.5	2	4.0		
Maritime Formation					1	2.0		
Tactical Formation			1	1.5	1	2.5		
Totals	**11**	**16.5**	**22**	**32.5**	**33**	**70.8**	**2**	**2.3**

USCG								
Flight/Events	**UTD**		**OFT**		**T-44C**			
					Dual		**Solo**	
	Flts	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**
Procedure Trainer	5	7.5						
Contact			3	4.5	10	18.0	1	0.3
Contact Check Ride					1	1.5		
Night Contact			1	1.0	2	3.0		
Instruments	6	9.0	15	22.5	15	38.0	1	2.0
Midstage Instrument Check			1	1.5				
NATOPS Instrument Check Ride					1	1.8		
Navigation					1	2.0		
Maritime Formation					1	2.0		
Tactical (SAR)			1	1.5				
Totals	**11**	**16.5**	**21**	**31.0**	**31**	**66.3**	**2**	**2.3**

TILTROTOR								
Flight/Events	**UTD**		**OFT**		**T-44C**			
					Dual		**Solo**	
	Flts	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**
Procedure Trainer	5	7.5						
Contact			3	4.5	10	18.0	1	0.3
Contact Check Ride					1	1.5		
Night Contact			1	1.0	2	3.0		
Instruments	6	9.0	15	22.5	15	38.0	1	2.0
Midstage Instrument Check			1	1.5				
NATOPS Instrument Check Ride					1	1.8		
Navigation			1	1.5				
Tiltrotor Formation			1	1.5	1	2.5		
Tiltrotor Tactical Formation			1	1.5	3	7.5		
Totals	**11**	**16.5**	**23**	**34.0**	**33**	**72.3**	**2**	**2.3**

E-6								
Flight/Events	**UTD**		**OFT**		**T-44C**			
					Dual		**Solo**	
	Flts	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**
Procedure Trainer	5	7.5						
Contact			3	4.5	10	18.0	1	0.3
Contact Check Ride					1	1.5		
Night Contact			1	1.0	2	3.0		
Instruments	6	9.0	15	22.5	15	38.0	1	2.0
Midstage Instrument Check			1	1.5				
NATOPS Instrument Check Ride					1	1.8		
Maritime Form and Aerial Refueling Fundamentals					1	3.0		
Totals	**11**	**16.5**	**20**	**29.5**	**30**	**65.3**	**2**	**2.3**

16. Training Time Analysis

ADDITIONAL TRAINING TIME PER CURRICULUM HOUR/EVENT			
Training Area	**Brief/Preflight/ Taxi**	**Taxi/Debrief**	**Total**
Flight	2.25	0.50	2.75
Simulator/CPT Dual Event	1.00	1.00	2.00
Simulator/CPT Single Event	0.50	0.67	1.17

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

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

19. Primary Instructional Methods. Lecture, computer-assisted instruction (CAI), self- and group-paced study, and in-flight instruction.

20. Preceding Curriculum Data. This curriculum replaces CNATRAINST 1542.147G for T-44C tracks only.

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

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ABBREVIATIONS

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

ADIZ - Air Defense Identification Zone

ADS - Air Delivery System

AERO - Aerodynamics

AF - Adaptability/Flexibility (CRM Skill)

AGL - Above Ground Level

AIM - Aeronautical Information Manual

AIRMET - Airman's Meteorological Information

AP - Area Planning

AP1/B - Area Planning 1/B

ARTCC - Air Route Traffic Control Center

ASI - Aviation Student Indoctrination

ASOS - Automated Surface Observing System

ASR - Airport Surveillance Radar

ATC - Air Traffic Control

ATF - Aviation Training Form

ATIS - Automatic Terminal Information Service

ATJ - Aviation Training Jacket

ATS - Aviation Training Summary

AWL - Above Water Level

AWOS - Automated Weather Observing System

BAC - Basic Aircraft Control

BASH - Bird/Animal Strike Hazard

BC - Back Course

CAI - Computer-Assisted Instruction

CDO - Command Duty Officer

CHUM - Aeronautical Chart Updating Manual

CI - Contract Instructor

CIS - Contract Instructional Services

CNATRA - Chief of Naval Air Training

CO - Commanding Officer

CPT - Cockpit Procedures Trainer

CRIT - Criterion Quiz or Exam

CRM - Crew Resource Management

CRM-F - Crew Resource Management Facilitator

CRM-I - Crew Resource Management Instructor

CS - Creeping Line Search

CTS - Course Training Standards

DCONFP - Day Contact Flight Procedures

DH - Decision Height

DHS - Department of Homeland Security

DINS - Defense Internet NOTAM System

DME - Distance Measuring Equipment

DoD - Department of Defense

DP - Departure Procedure

DZ - Drop Zone

EFAS - Enroute Flight Advisory Service

EMFP - Emergency Flight Procedures

EOB - End of Block

EP - Emergency Procedure

ESIS - Electronic Standby Instrument System

ET - Extra Training

FAA - Federal Aviation Administration

FAF - Final Approach Fix

FAR - Federal Aviation Regulations

FD - Flight Director

FDC - Flight Data Center

FIH - Flight Information Handbook

FLIP - Flight Information Publication

FMS - Flight Management System

FP - Flight Procedures

FPC - Final Progress Check

FRR - Flight Rules and Regulations

FSS - Flight Support Services

FTI - Flight Training Instruction

GCA - Ground-Controlled Approach

GP - General Planning

GPS - Global Positioning System

GPSFP - Global Positioning System Flight Procedures

HILO - Holding-In-Lieu-Of

IAF - Initial Approach Fix

IAW - In Accordance With

ICAO - International Civil Aviation Organization

IFR - Instrument Flight Rules

IIMC - Inadvertent Instrument Meteorological Conditions

ILS - Instrument Landing System

IMC - Instrument Meteorological Conditions

IMS - International Military Student

IMSO - International Military Student Officer

INAV - Instrument Navigation

INS - Inertial Navigation System

IP - Instructor Pilot

IPC - Initial Progress Check

IR - Instrument Route

JMPS - Joint Mission Planning System

JOG - Joint Operations Graphical (Chart)

KIAS - Knots Indicated Airspeed

LECT - Lecture

LL - Low-Level

LLNAV - Low-Level Navigation

LLNAVFP - Low-Level Navigation Flight Procedures

LL/TF - Low-Level/Tactical Formation

LOA - Letter of Agreement

LOC - Localizer

LOC-BC - Localizer-Back Course

LPV - Local Performance with Vertical Guidance

LSC - Level Speed Change

LZ - Landing Zone

MAP - Missed Approach Point

MARSA - Military Assumes Responsibility for Separation of Aircraft

MDA - Minimum Descent Altitude

Metro - Meteorology

MFD - Multifunction Display

MIF - Maneuver Item File

MIL - Mediated Interactive Lecture

MOA - Military Operating Area

MPTS - Multi-Service Pilot Training System

NACO - National Aeronautical Charting Office

NATCAP - Naval Air Training Class Advisor Program

NATOPS - Naval Air Training Operating Procedures Standardization

NAVAID - Navigational Aid

NDB - Nondirectional Beacon

NFS - Naval Flight Student

NGA - National Geospatial Intelligence Agency

NM - Nautical Mile

NMU - Number of Marginals and UNSATs

NOTAMs - Notices to Airmen

NTAP - National Track Analysis Program

NSS - Navy Standard Score

ODP - Obstacle Departure Procedure

OFT - Operational Flight Trainer (T-44C OFT)

OIS - Obstacle Identification Surface

ONAV - Over Water Navigation

OPARS - Optimum Path Aircraft Routing System

OPNAV - Office of the Chief of Naval Operations

OPS - Operations

ORM - Operational Risk Management

OSC - On-Scene Commander

PAPI - Precision Approach Path Indicator

PAR - Precision Approach Radar

PAS - Phase Aggregate Score

PF - Pilot Flying

PI - Point of Impact

PIC - Pilot-in-Command

PM - Pilot Monitoring

PMSV - Pilot-to-Metro Service

P/P - Pen/Pencil and Paper

PP - Partial Panel

PS - Parallel Search

PT - Procedure Turn

RAIM - Receiver Autonomous Integrity Monitoring

RCVA - Rockwell Collins Virtual Aircraft

RDO - Runway Duty Officer

RNAV - Area Navigation System

RNP - Required Navigation Performance

RON - Remain Overnight

RRU - Ready Room UNSAT

RV - Radar Vectors

RVSM - Reduced Vertical Separation Minima

SAR - Search and Rescue

SDO - Squadron Duty Officer

SID - Standard Instrument Departure

SIGMET - Significant Meteorological Information

SMA - Student Military Aviator

SMS - Student Monitoring Status

SNA - Student Naval Aviator

SOP - Standard Operating Procedure

SQDN - Squadron

SS - Self-Study

SSC - Surface Surveillance Coordination

SSE - Simulated Single Engine

SSR - Special Syllabus Requirement

STARS - Standard Terminal Arrivals

SYS - Systems

TAC - TACAN

TACAN - Tactical Air Navigation

TACFFP - Tactical Formation Flight Procedures

TAS - Traffic Avoidance System

TERPs - Terminal Instrument Procedures

TF - Tactical Formation

TLS - Track Line Search

TOA - Time of Arrival

TOLD - Takeoff and Landing Data

TOT - Time on Target

TPC - Tactical Pilotage Chart

TRB - Training Review Board

UNSAT - Unsatisfactory

USBAM - U.S. Bird Avoidance Model

USCG - United States Coast Guard

USMC - United States Marine Corps

USN - United States Navy

UTD - Unit Training Device (T-44C UTD)

VASI - Visual Approach Slope Indicator

VCOA - Visual Climb Over Airfield

VDA - Vertical Descent Angle

VDP - Visual Descent Point

VFR - Visual Flight Rules

VHF - Very High Frequency

VMC - Visual Meteorological Conditions

V_{mca} - Minimum Control Airspeed (air)

V_{mcg} - Minimum Control Airspeed (ground)

VNAV - Visual Navigation

VNAVFP - Visual Navigation Flight Procedures

VOR - VHF Omnidirectional Range

VR - Visual Route

VS - Vertical Speed or Sector Search

WW - Weather Watch

WX - Weather

XO - Executive Officer

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 SMA performance for all categories of training regardless of media, phase, or stage.

3. Aviation Training Jacket. The ATJ is the SMA's training record. It contains ATFs, calendar card, grade reports, and all other associated training information. It is filed in student control and follows the SMA 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 third character in the lesson designator identifies a block.

6. Blue ATF. The standard ATF that is printed on blue paper. The blue ATF is used to denote a marginal event or SMS documentation.

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

8. Contact. The stage of training that includes both day and night familiarization.

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, flight training instructions, 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 (Rev. 4-04) Training Review Board Summary Form, generated by the TRB, that summarizes a specific SMA's progress in a given syllabus and provides detailed information on the application of MPTS training for that SMA. Deliverables indicate whether the quality and continuity of training provided was IAW CNATRAINST 1542.168 and indicate the degree of influence by "human factors" on the SMA's performance.

14. Demonstrate. Instructor performs the maneuver with precision and accompanying description. SMA is responsible for knowledge of the procedures prior to event brief and observes the maneuver.

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

16. End of Block. Last event in block. In order to progress past EOB, the SMA 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.

17. Extra Training (SXX87). Additional SMA training flights ordered by the Commanding Officer in order to compensate for documented training deficiencies.

18. Final Progress Check (SXX89). A special check normally given by the CO or XO. The CO may designate, in writing, FPC duty to a qualified O-4 or above. This is only done if the CO or XO is unqualified or unavailable to instruct in the required stage. A satisfactory FPC returns the SMA to normal syllabus flow. An UNSAT FPC results in a TRB.

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

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

21. Initial Progress Check (SXX88). A special check given by a senior O-3 or above designated in writing by that squadron CO. A satisfactory IPC returns the SMA to normal syllabus flow. An UNSAT IPC results in an FPC.

22. Introduce. Instructor coaches the SMA through the maneuver as necessary and/or may demonstrate the maneuver again. The SMA is responsible for knowledge of the procedures prior to the event brief and for performing the maneuver with coaching.

23. Lesson Designator. All syllabus events have a five-character lesson designator in the following format:

Char	**Meaning**	**Remarks**		
1st	Stage	G—Ground C—Contact	I—Instrument N—Navigation	F—Formation T—Tactical
2nd	Media	0—Ground Training	2—UTD 3—OFT	4—Aircraft
3rd	Block	Sequential, indicating block within stage.		
4th & 5th	Event/Check Identifier	Sequential, indicating event within block, or other event types as shown below: 84—Adaptation 85—Practice Sim 86—Warmup 87—Extra Training		88—Initial Progress Check 89—Final Progress Check 90—Check Ride/Exam

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

25. Master Syllabus. Chapters I-VIII list all training syllabus activities, prerequisites, and training flow for MPTS.

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

27. Off-Wing Flight. A Contact flight not flown with the SMA's on-wing.

28. On-Wing. The SMA's assigned instructor in the contact stage per CNATRAINST 1500.4H.

29. Phase of Training. A major division in the course of training. MPTS consists of three phases: Primary, Intermediate, and Advanced.

30. 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.

31. Practice. Instructor observes SMA with minimal coaching; may also demonstrate the maneuver if necessary. The SMA must perform maneuver with minimal coaching.

32. Ready Room UNSAT (RRU). An UNSAT grade given for inadequate knowledge of flight procedures, systems, discuss items, emergency procedures, or deficient preflight planning.

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

34. Stage of Training. All training of a particular type (Ground, Contact, Instruments, Navigation, Formation, Tactical) within a phase. The first letter in the lesson designator identifies the stage of each lesson (Example: F4101 is in the Formation Stage).

35. Student Monitoring Status. Squadron-initiated status to address substandard SMA performance.

36. Training Media. MPTS media include aircraft, simulator, CPTs, ground training, and CAI. The second character in the lesson identifier designates the training media.

37. Training Review Board. A fact-finding board generated by a failed FPC that considers the circumstances relevant to the SMA's training, such as quality and continuity of training, outside influences, and extenuating circumstances. The TRB does not make attrition/retention recommendations.

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

39. 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.

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Chapter I

General Instructions

1. Syllabus Management

a. Distribution. Participating squadron personnel.

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

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

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

e. Execution. SMAs will execute all the curriculum events except as listed below:

Academics: N0101-2, N0201, T0101-2, and G05 are for USMC C-130 and Tiltrotor only.
F0101 is for USN P-3/P-8, USMC C-130, USCG, and E-6 only.
F0201 is for USN P-3/P-8, E-6, and Tiltrotor only.
F0301 is for Tiltrotor only.

Simulators: N3101 is for USMC C-130 and Tiltrotor.
T3101 is for USCG only.
T3201 is for USMC C-130 only.
F3101 and T3301 are for Tiltrotor only.

Flight Events: F4101 is for USMC C-130 and USCG only.
F4201 is for Tiltrotor only.
F4301 is for USN P-3/P-8 and E-6 only.
N4101 is for USN P-3/P-8 and USCG only.
N42 block is for USMC C-130 only.
T4101 is for USMC C-130 only.
T42 block is for Tiltrotor only.

f. Syllabus Description. T-44C Advanced Multi-Engine MPTS consists of multi-engine training for USN, USMC, USCG, and International SMAs who will go to multi-engine follow-on pipelines. This training is flown in the T-44C aircraft. Each phase is divided into stages. Stages are grouped by like flight training regimes: Contact, Instrument, Navigation, Formation, and Tactical. 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. An SMA's PAS is a comparative ranking based on the previous population of completers for a specific phase or portion of a phase of aviation training. PAS indicates only SMA performance relative to a normative population of other recent SMAs. Under the MPTS system, PAS is not by itself an indication of whether an SMA has met the criteria necessary for winging or continuation in aviation training.

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

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

Where

S – SNA Score
NMU – SNA NMU
M1 – Squadron Average Score
M2 – Squadron Average NMU
S1 – Standard Deviation of Squadron Score
S2 – Standard Deviation of Squadron NMU

(2) NSS. NSS is calculated to correct for potential non-normality in the distribution of PAS. NSS is calculated for the entire phase. NSS is calculated from PAS by using equation (2), below:

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

Where

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

2. Training Management

a. Syllabus Progression. Fly syllabus events within each stage sequentially. Do not start a block without all prerequisites. SMAs may be in different stages or blocks simultaneously. Where applicable, SMAs will be eligible for, and shall be prepared for, more than one syllabus event. SMAs must complete all events except as listed in paragraph 1e. The flowcharts on pages I-5 and I-7 delineate the sequence of flying events and their ground training prerequisites except as listed in paragraph 1e and 2b. System training management is designed to facilitate two graded events (flight, simulator, or exam) per SMA per day.

b. Accelerated Progression. Under exceptional circumstances, an SMA's previous flight experience or demonstrated proficiency may warrant accelerated progression. The squadron CO may advance the SMA to the next block of instruction when all required items for the current block of instruction meet EOB MIF. This policy shall not be used to accelerate squadron production goals. It is strictly for the rare instances where the SMA's demonstrated proficiency makes completion of all events within a block of instruction unnecessary. For example, pipeline reassignment of SMAs from Strike may warrant acceleration through the Instrument Phase based on previous instrument training. All records for the accelerated SMA, including the ATJ and mini-ATJ, will be clearly marked ACCELERATED PROGRESSION. ATFs for the events not flown will be completed with a note in the remarks section stating "ACCELERATED PROGRESSION – EVENT NOT FLOWN. ATF COMPLETED FOR ADMINISTRATIVE PURPOSES ONLY IAW CNATRAINST 1500.4H."

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

d. Hours/X (H/X). Instructors shall plan and execute missions to meet H/X as closely as possible. If actual sortie length varies from H/X by more than 0.3 hours (greater or less than), the instructor shall annotate the reason(s) in the ATF's general comments section.

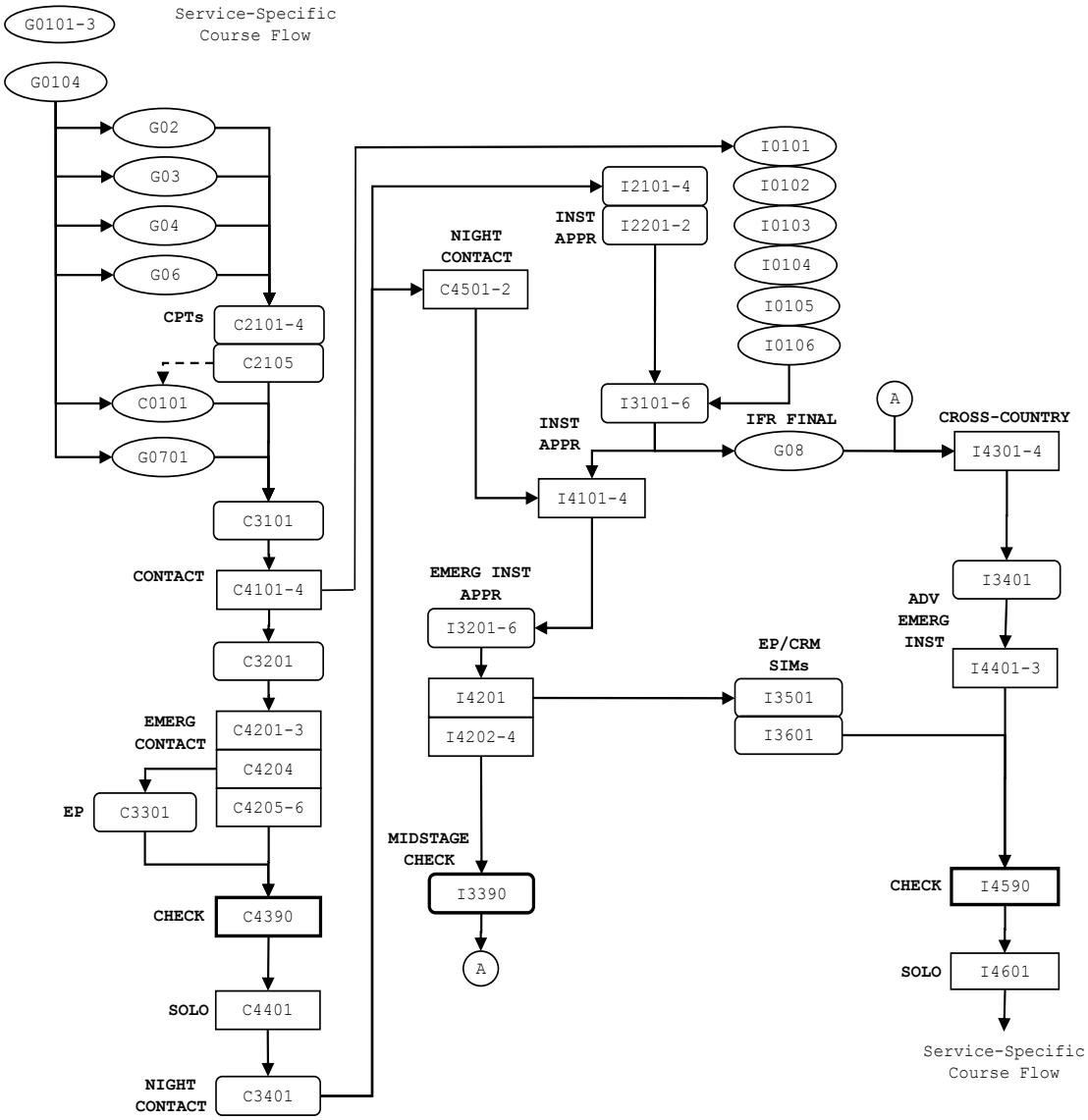
e. Special Syllabus Requirements. The SSRs are allocated to blocks. Unless noted otherwise, IPs may accomplish SSRs on any flight within the block. The SSRs shall be completed in the specified block. Annotate completed SSR in the following three places on the TIMS ATF: Enter a remark in the Comments section, assign NG/1 as the SSR maneuver grade, and date/save SSR exposure on the ATF SSR tab.

f. Aviation Training Jacket Reviews. The Class Advisor shall conduct weekly jacket reviews in accordance with the NATCAP (CNATRAINST 5351.1B). ATS forms are required to be reviewed before each flight or simulator event. ATJ reviews may be made as often as warranted by the individual SMA's progress, subject to the following guidelines:

(1) All reviews shall be annotated on the CNATRA-GEN 1542/66, Jacket Review Divider, in the ATJ.

(2) SMAs placed on SMS require weekly ATJ reviews by the Student Control Officer for as long as the SMA remains on SMS.

T-44C CORE COURSE FLOW



Ground Training	G0101-4 - Indoctrination	G07 - CRM Block
Flight	G02 - IFR – Phase I	G08 - IFR – Phase II
Simulator	G03 - Systems	C0101 - Contact Brief
Flow Connector	G04 - Aerodynamics	I01 - Instrument Brief/FMS
	G06 - Flight Procedures	------ = Alternate flow

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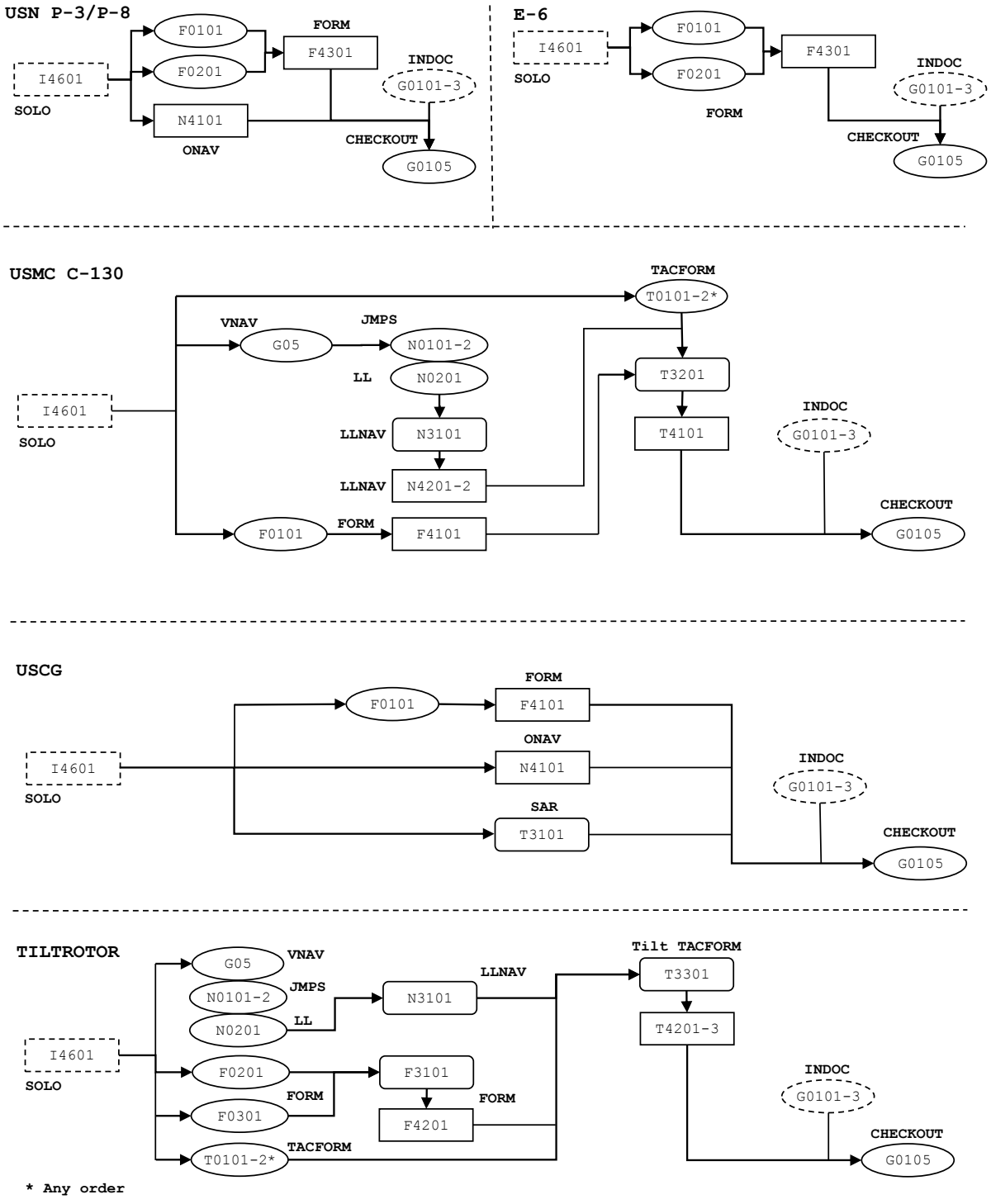
T-44C POST-I4601 COURSE FLOW



3. UNSAT Performance

a. Flight/Simulator

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

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

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

(4) A subsequent check ride failure, two further consecutive UNSATs, three more cumulative UNSATs (in block), or four cumulative UNSATs in a phase results in an FPC.

(5) Failing an FPC results in a TRB.

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

(1) The SMA is inadequately prepared for the scheduled event. A "Ready Room UNSAT" is awarded when an SMA demonstrates UNSAT knowledge during a brief. The RRU triggers an IPC and shall be documented on a pink version of the event's ATF. The event will be marked as incomplete with a U/2 grade in the procedures column. Upon remediation of the unsatisfactory performance, the event shall be flown to completion and general knowledge and emergency procedures shall be incorporated into the overall grading solution. A missed brief does not constitute a "Ready Room UNSAT" and should be dealt with using other disciplinary methods. Use a supplemental ATF to document a missed brief and then administer counseling/discipline as required by the squadron CO.

(2) The SMA fails a non-academic examination (e.g., ops limits quiz, NATOPS quiz, etc.).

c. Academic. A failed academic examination will count toward the "four cumulative UNSATS" trigger for an FPC. Failing two academic exams in a phase also triggers an FPC.

d. Remediation

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

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

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

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

e. Restrictions. Until remediating the UNSAT:

(1) The SMA shall not fly solo.

(2) The SMA shall not accomplish training in any other stage. Academic classes, examinations, and ground training may be accomplished provided the UNSAT event was not a prerequisite.

4. Training Review Board

a. The TRAWING shall conduct a TRB on all NFSs recommended for attrition.

b. Refer to 1500.4H for additional information.

5. Instructor Continuity

a. SMAs shall fly Contact syllabus events C3101, C3201, C4101-4 and C4201-2 with their on-wing.

b. Any Contact Stan IP may substitute as on-wing in the event the SMA's on-wing is not available and an on-wing change is not prudent.

c. There are no other continuity requirements unless specified by the Flight Leader for SMS SMAs.

6. Break in Training Warmup Events (SXX86)

a. A nonsyllabus warmup event is one given to regain flight proficiency due to an extended nonsyllabus training delay. Eligibility is based on the number of days since the last flight or simulator in the same stage. The following guidelines will be used to determine warmup criteria. For more detailed information on warmup training, refer to CNATRAINST 1500.4H.

(1) Optional warmups shall be scheduled and flown as the next event. If performance warrants a warmup, it shall be re-coded as the last completed dual event.

(2) If the break in training occurs during the transition from aircraft to simulator, a mandatory warmup shall be flown in the simulator and coded as the last completed simulator in stage. The WU may be flown in the aircraft with the TRAWING Commander's approval.

(3) If the break in training occurs between two aircraft or two simulator events, mandatory warmup shall be flown and coded as the previously completed (dual) event.

(4) All warmups shall be dual (flight) or instructional (simulator).

(5) For safe-for-solo and/or any other delays less than seven days in phase, specific warmup criteria promulgated in each curriculum shall apply.

(6) Warmup events shall be coded as a SXX86 event (e.g., C4186).

(7) The instructor is required to state on the ATF the reason(s) for awarding the warmup event.

(8) Check events (SXX90) are considered part of the previous block ("in block") for WU purposes.

(9) Mandatory WUs shall be scheduled and flown as the last completed event. The event shall be coded as a WU.

(10) The following table is a quick reference on policy regarding the use of warmups with respect to breaks in training.

CRITERIA FOR AWARDING WARMUP EVENTS IN STAGE		
Break* (Days)	**Warmup Events**	**Remarks**
7-13 Sim to A/C	1 Mandatory Simulator	• Mandatory WU is not an advancing event. • Warmup event may be flown in aircraft with the TRAWING Commander's approval.
7-13 All others	1 Optional	• Optional WU is based on performance and is required if overall grade is Marginal or UNSAT. • WU is prohibited if performance meets MIF or is sufficient to meet MIF by EOB.
14-30 Sim to A/C	2 Mandatory Simulators	• Mandatory WUs are not advancing events. • For blocks with a single simulator event, only one mandatory WU event is required.
14-30 All others	1 Mandatory 1 Optional	• Mandatory WU is not an advancing event. • Optional WU is based on performance and is required if overall grade is Marginal or UNSAT. • WU is prohibited if performance meets MIF or is sufficient to meet MIF by EOB.

*Break = (Current Julian Date) – (Julian Date of last simulator or flight event in state).

b. Training Delays and Warmups Between Stages. Warmups are intended for nonsyllabus breaks in training. Each syllabus is designed to allow sufficient time for academics, simulators, and flights. First flights and simulators in block following ground training are designed and graded with the delay factored in and normally do not require a warmup.

(1) Between stages, a mandatory warmup is required if 14-30 days have elapsed since any curriculum flight or simulator event (unless otherwise specified in the MCG).

(2) All warmup events between stages shall be recorded on an ATF for the event deemed most consistent with the procedures reviewed.

c. Extended Training Delays. If the period between events is greater than 30 days within a curriculum, the squadron CO shall determine an appropriate warmup training plan to regain SMA proficiency with the following guidance considered.

(1) Generally a warmup training plan should consist of a representative cross-section of events completed prior to the break in training.

(2) At the completion of the warmup training plan or when proficiency is regained prior to the completion of the warmup training plan, the SMA shall resume the normal curriculum flow.

(3) If the SMA has not regained proficiency sufficient to resume training following the designated warmup training plan, additional warmup training is left to the CO's discretion.

(4) A copy of the warmup training plan and any subsequent modifications shall be filed in the SMA's ATJ.

7. Additional Flights/Simulators

a. Extra Training Events (SXX87). All ETs shall be dual and coded as SXX87, e.g., C4187. ET sorties include:

(1) IPC/FPC ET Events. ET events are awarded to compensate for training deficiencies (e.g., poor sortie continuity), not to compensate for a lack of ability, aptitude, or effort on the part of the NFS.

(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 ET(s).

(2) International SMAs. Foreign-language Extra Training (ET) events are ***not*** authorized unless coordinated beforehand. Coordination is required between the training squadron IMSO, TRAWING IMSO and NETSAFA, with notification to CNATRA (N717) of any approved foreign-language ETs. Approval of foreign-language ETs shall be documented on a Supplementary ATF.

(3) Additional Events to Meet Minimum Curriculum Time. The minimum curriculum and night flight hour requirements shall not be waived. An event flown to meet minimums shall be flown as an ET sortie (SXX87). Squadron COs are responsible for ensuring the ETs flown to meet curriculum minimums provide the SMA with worthwhile training.

b. Adaptation Events (SXX84). The Squadron CO may grant events required for adaptation to the flying environment when requested by the Flight Surgeon (e.g., for airsickness per CNATRAINST 6410.2).

8. Student Monitoring Status (SMS)

a. An SMA who receives two UNSATs in a block of training or three UNSATs within a phase of training shall be placed on SMS. The objective of SMS is to focus supervisory attention to an SMA's progress in training, specific deficiencies, and potential to complete the program. SMS may also be applied to SMAs who require supervisory attention while trying to resolve personal issues.

b. The Squadron CO is not constrained to the UNSAT-related SMS trigger; a CO may place an SMA on SMS anytime that the CO perceives a need for focused attention to resolve SMA difficulties.

c. SMS is intended as a short-term program. SMS requires specific goals. SMS should include, but is not limited to, training tailored to correct deficiencies or to address personal issues.

d. If the SMA achieves the goals within the SMS period or when personal issues are resolved, the SMA returns to normal training flow. If the SMA is unable to meet the specific goals of SMS or performance does not improve, the SMA shall be referred to a Command-Directed FPC.

e. Refer to CNATRAINST 1500.4H for SMS documentation requirements.

9. Ground Training and Briefing Requirements

a. Mission Preparation, Briefings, and Debriefings

(1) The instructor shall review the SMA's previous ATFs before each event. The instructor should note any SMA performance trends or areas of weakness that could potentially impact the flight. For End of Block (EOB) events, the instructor shall carefully review previous performance and plan the event profile to include opportunities to reach MIF on all critical items and optional items previously attempted.

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

(a) Thorough knowledge of:

1. The flight's Discuss Items, as listed in Chapters IV-VIII.

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

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

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

(a) Event Discuss Items, as listed in Chapters IV-VIII.

(b) Specific objectives.

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

(d) Planned profile and contingencies.

(4) Debriefing

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

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

b. Emergency Procedures (EP) Briefing and Training

(1) EP training builds the SMA'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 simulator events when practical; however, instructional block objectives take precedence.

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

10. Mission Grading Procedures and Evaluation Policies

a. General Grading and Evaluation Policy. Maneuver item files listed in the MPTS are minimum stage/phase completion standards per maneuver.

b. Grading Procedures (Aircraft and Training Devices)

(1) Absolute Maneuver Grading. Use the following grading scale to document the SMA's characteristic performance on maneuvers attempted during each dual event. This is an absolute grading scale. Judge the SMA's proficiency ***only*** against the item's course training standard.

(a) Demonstrated (NG/1).

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

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

3. To indicate accomplishing all SSRs for that event. Specify the completed SSR in the ATF's maneuver item content line and document date of exposure on the SSR tab.

(b) Unable (U/2). 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). 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). Performance meets or exceeds CTS. Deviations outside CTS are allowed, provided they are brief, minor, and do not affect safety of flight. Corrections must be appropriate and timely.

(e) Excellent (E/5). Surpasses CTS. Performance is correct, efficient, and skillful. Deviations are very minor. Corrections, if required, are initiated by the SMA and are appropriate, smooth, and timely.

(2) Solo Events

(a) Assign NG/1 for performed maneuvers.

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

(3) Overall Event Grades. Overall event grades represent the SMA'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 SMA's performance meets or exceeds block MIF.

(b) Marginal. The SMA's ability to meet block standards by EOB is questionable. The ATF shall be printed on ***blue*** paper. Instructors shall not award a Marginal on an EOB event, check event, IPC, or FPC. If performance is Marginal on an optional WU, the instructor shall ensure the event is re-coded as a WU (SXX86) prior to ATF completion.

(c) UNSAT. SMA exhibits dangerous tendencies, or progress towards meeting EOB standards is insufficient. UNSAT overall is at the instructor's discretion, unless it is triggered by regression rules. It should be noted that an event may be graded UNSAT without any individual maneuvers graded 2/Unable. Document UNSAT events that do not generate a progress check on a yellow ATF. Document UNSAT events that generate a progress check on a pink ATF.

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

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

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

1. C41 MIF requires an F/3 for No-Flap Landings (NFL). C42 MIF requires a G/4.

2. The SMA must meet or exceed F/3 to progress out of C41.

3. The SMA must maintain or exceed F/3 until the last C42 event, by which time the SMA must attain G/4.

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

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

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

1. The SMA has previously demonstrated G/4 proficiency when a G/4 was required on a previous block MIF.

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

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

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

1. Regression was to a U/2 where F/3 or G/4 is 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 is 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 SMA 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 SMA meets EOB MIF.

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

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

1. Unnumbered items.

2. Items not in the stage.

3. Exceptions:

a. Weather-driven instrument approaches.

b. Prebriefed maneuvers for IP proficiency.

(7) Incomplete Events. In general, IPs should consider an event complete if able to accomplish the requirements in paragraph (a) below. This guideline 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 an SMA has had ample opportunity to learn a task and subsequently flies a short mission, do not incomplete the mission solely to provide unwarranted extra training.

(a) Assessment. Assess the event complete if:

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

2. There are sufficient events remaining in block to allow for the completion of all 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 X.

2. For events flown exclusively to clear an incomplete, grades on maneuvers repeated from the incomplete event do not count towards the SMA'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 SMA has received a full training period.

c. Policies for Evaluation Flights and Ground Evaluations

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

(2) Check Rides (SXX90)

(a) Single-Event Training Blocks. Check rides amount to single-event training blocks; therefore, all rules regarding progressing out of a block apply, except as noted below:

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. Check pilots may allow SMAs to reattempt maneuvers.

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

5. The SMA should be able to demonstrate required levels of proficiency without instructor assistance; however, instruction is allowed on check rides and SMAs may reattempt maneuvers at the check pilot's discretion.

(b) Incomplete Check Ride. The check ride shall be incomplete when:

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

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

Note: The subsequent flight or simulator 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 optional items were graded F/3 where G/4 is required, or

c. Any maneuver is graded U/2.

(c) Instrument or Navigation Stage Check Failure. If the SMA fails an Instrument or Navigation stage check because of an UNSAT pattern/landing not directly related to the stage being evaluated, any subsequent ET event may be flown as a contact event, and the resulting progress check may also be a contact event.

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

(3) Progress Checks. Progress Checks flown in the aircraft or simulator are holistic reviews of an SMA's proficiency, judgment, air sense, and overall ability to maneuver the aircraft safely and confidently. The intent of every Progress Check is to determine whether the SMA has the potential to reach the defined training standards of his/her current phase of training within the designated TTT, while demonstrating the potential to successfully complete advanced and FRS-level training.

(a) Refer to 1500.4H for additional information.

11. Special Instructions and Restrictions

a. Flight Hour/Event Requirements and Restrictions

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

(2) Minimum Night Hours. 10.0 hours all tracks.

(3) Minimum Solo Hours. At least 80% of the H/X for each solo event must be logged to count the event complete. SMAs should accumulate a minimum of 1.6 hours of first pilot time on I4601.

(4) Maximum Daily SMA Activities (Aircraft, Simulator, or Academic). SMAs shall not exceed two graded activities during one duty day.

(5) Minimum SMA Turn-Times. One hour is required between debriefing of an event and the brief for a follow-on or simulator event. This does not apply to out-and-in, cross-country, or safe-for-solo to hot-seat profiles; however, the instructor shall ensure adequate debrief and brief time is allocated.

(6) Crew Day. The period from the beginning of the SMA'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 SMAs. After six consecutive scheduled days, SMAs shall receive one day off. SMAs shall not be scheduled within 12 hours after debrief.

b. Solo Restrictions. The Runway Duty Officer shall brief the SMA for Contact solos and the Command Duty Officer shall brief I4601 Solo Airways Navigation SMAs. The flight briefing must cover mission profile, objectives, and contingencies. Instructor pilots shall not fly onboard student solo events.

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

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Chapter II

Ground Training

Blk #	Media	Title	Events	Hrs	Blk Name
G01	Sqdn/ Class	Indoctrination	5	4.1	ASI

1. Prerequisites

a. G0101 prior to G0102-3 (in order).

b. Prerequisites for G0105 vary by service (see flow charts).

2. Events

G0101	Lect	Squadron Welcome Aboard	1.0
G0102	Sqdn	Squadron Policies	1.0
G0103	Sqdn	Facilities Tour	1.0
G0104	Lect	Academic Indoctrination (Class)	1.0
G0105	Admin	Checkout	0.1

3. Syllabus Note. G0105 is an administrative event and allows a final check that all requirements for completion of syllabus have been met.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
G02	Class/ CAI	Instrument Flight Rules—Phase I	21	48.5	See Below

1. Prerequisites

a. G0104 prior to G0201.

b. G0201 prior to G0202-4 (any order), G0206-11 (any order), and G0213-16 (any order).

c. G0203 prior to G0205A.

d. G0205A-C in order.

e. G0209, G0210, and G0211 prior to G0212.

f. G0213-16 prior to G0217.

g. G0206 prior to G0218.

h. G0204, G0205C, G0207, G0208, and G0212 prior to G0290.

i. G0290 prior to G0217.

2. Events

G0201	Lect	Introduction to IFR	0.5	IFR
G0202	Lect	Sensory Problems/Spatial Disorientation	1.0	IFR
G0203	Lect	Navigational Aids	1.0	IFR
G0204	CAI	T-44C INAV Instrument Approach Procedures	3.5	IFR
G0205A	MIL	INAV (Day 1)	2.5	IFR
G0205B	MIL	INAV (Day 2)	6.0	IFR
G0205C	MIL	INAV (Day 3)	1.5	IFR
G0206	CAI	INAV Flight Planning	3.5	IFR

2. Events (Cont)

G0207	P/P	INAV Practice Exam	2.0	IFR
G0208	Lect	INAV Review	3.0	IFR
G0209	CAI	Meteorology	4.0	Metro
G0210	MIL	Meteorology	3.0	Metro
G0211	Lect	Meteorology Review	2.0	Metro
G0212	CAI Test	Meteorology Exam	2.0	Metro
G0213	CAI	FRR	3.0	FRR
G0214	Lect	FRR	2.0	FRR
G0215	P/P	FRR Practice Exam	2.0	FRR
G0216	Lect	FRR Review	1.0	FRR
G0217	CAI Test	FRR Exam	2.0	FRR
G0218	Lect	Review Flight Planning	1.0	IFR
G0290	CAI Test	Instrument Navigation Exam	2.0	IFR

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
G03	Class /CAI	Systems	32	32.5	SYS

1. Prerequisites

a. G0104 prior to G0301.

b. After completion of G0301, academic instructors determine order of completion of remaining events with the exception of the G0329, G0390, and G0330. These events are accomplished in order after all the other events in the block are completed. G0334 can be scheduled at any time prior to C2101.

2. Events

G0301	MIL	T-44C Introduction to Aircraft Systems	0.5
G0302	CAI	T-44C General Aircraft	0.5
G0303	MIL	T-44C General Aircraft	0.5
G0304	CAI	T-44C Power Plant and Related Systems	2.0
G0305	MIL	T-44C Power Plant and Related Systems	1.0
G0306	CAI	T-44C Propeller System	1.0
G0307	MIL	T-44C Propeller System	1.0
G0308	CAI	T-44C Fuel System	1.0
G0309	MIL	T-44C Fuel System	1.0
G0310	CAI	T-44C Flight Control System	0.5
G0311	MIL	T-44C Flight Control System	0.5
G0312	CAI	T-44C Landing Gear System	1.0
G0313	MIL	T-44C Landing Gear System	1.0
G0314	CAI	T-44C Environmental Systems	1.5

2. Events (Cont)

G0315	MIL	T-44C Environmental Systems	1.5
G0316	CAI	T-44C Electrical System	1.0
G0317	MIL	T-44C Electrical System	1.5
G0318	CAI	T-44C Flight Instruments	0.5
G0319	MIL	T-44C Flight Instruments	0.5
G0320	CAI	T-44C Navigation and Communication	1.0
G0321	MIL	T-44C Navigation and Communication	1.5
G0322	CAI	T-44C Autopilot System	1.0
G0323	MIL	T-44C Autopilot System	1.0
G0324	CAI	T-44C Multi-Function Display	1.0
G0325	MIL	T-44C Multi-Function Display	1.0
G0326	CAI	T-44C Flight Management System	1.0
G0327	MIL	T-44C Flight Management System	1.0
G0328	Sqdn	T-44C Aircraft Tour	1.0
G0329	Lect	T-44C Course Review	2.0
G0390	CAI Test	T-44C Aircraft Systems Exam	2.0
G0330	Lect	T-44C Aircraft Systems Exam Review	0.5
G0334	Lect	T-44C Simulator Brief	0.5

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
G04	Class/ CAI	Aerodynamics	8	24.5	AERO

1. Prerequisites

a. G0104 prior to G0401 and G0402.

b. G0402 prior to G0403, G0404, G0405, G0406, and G0407.

c. G0401, G0403, G0404, G0405, G0406, and G0407 in any order prior to G0490.

2. Events

G0401	CAI	T-44C Aerodynamics/Power Performance	4.0
G0402	Lect	Introduction to T-44 Aerodynamics	5.0
G0403	Lect	T-44 Aerodynamics Lecture (Weight and Balance)	2.5
G0404	Lect	T-44 Aerodynamics Lecture (TOLD)	2.5
G0405	Lab	T-44 Aerodynamics Lab (Weight and Balance Problem)	3.0
G0406	Lab	T-44 Aerodynamics Lab (TOLD Problem)	3.0
G0407	Lect	Aerodynamics Review	0.5
G0490	P/P	T-44C Aerodynamics Exam	4.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
G05	Class/ CAI	Visual Navigation	7	11.0	VNAVFP

1. Prerequisites

a. I4601 prior to G0501 and G0501 prior to G0502-6.

b. Academic instructors determine order of completion of G0502-5; complete G0502-5 in any order prior to G0506 and complete G0506 prior to G0590.

2. Events

G0501	MIL	Introduction to Visual Navigation Concepts	1.5
G0502	MIL	Chart Interpretation and Legend Review	1.5
G0503	MIL	Using CR2 & E6B Navigation Computers	0.5
G0504	MIL	VFR Mission Planning Procedures	2.0
G0505	MIL	Chart CHUMing Procedures	0.5
G0506	MIL	FLIP Area Planning – 1B Military Training Routes and SOP Review	1.0
G0590	P/P	VNAV Exam	4.0

3. Syllabus Note. G05 is not applicable for USN P-3/P-8, USCG, and E-6 SMAs.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
G06	Class/ CAI	Flight Procedures	6	11.75	See Below

1. Prerequisites

   a. G0104 prior to this block.

   b. Academic instructors determine order of completion.

2. Events

G0601	P/P	T-44C CRIT Exams	2.00	FP
G0602	CAI	T-44C Emergency Flight Procedures	2.00	EMFP
G0603	CAI	T-44C Contact Flight Procedures	2.00	DCONFP
G0604	Lect	T-44C Flight Procedures Lecture	2.50	FP
G0605	MIL	Course Rules Lecture	2.50	FP
G0606	Lect	Flight Line Driver's License Brief	0.75	FP

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
G07	Class	Crew Resource Management	1	2.0	CRM

1. Prerequisite. G0104.

2. Events

G0701	MIL	Seven CRM Skills	2.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
G08	Class/ SS	Instrument Flight Rules — Phase II	10	22.0	IFR2

1. Prerequisites

   a. I3106 prior to G0801 and G0802.

   b. G0802 prior to G0803-8.

   c. G0801 and G0803-8 in any order prior to G0809.

   d. G0809 prior to G0890.

2. Events

G0801	Lect	DD-175 Lecture and Advanced Multi-Engine Fuel Log Review	1.0
G0802	Lect	Introduction to Advanced Flight Planning	1.0
G0803	SS	FLIP Review	3.0
G0804	SS	CR-2 Exercises	1.5
G0805	SS	Metro Review	1.5
G0806	SS	DD-175 Flight Plans	1.0
G0807	SS	Multi-Engine Fuel Logs	1.0
G0808	SS	Practice Flight Planning	5.5
G0809	MIL	IFR Final Exam Review	2.5
G0890	P/P	IFR Final Exam	4.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Chapter III

NATOPS Training

This chapter does not apply to Multi-Engine training.

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Chapter IV

Contact Training

1. Matrices. The following matrix is an overview of the entire Contact Stage by track. The purpose of this matrix is to provide the SMA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Stage MIF

Simulator Event
Check Ride Event

CONTACT STAGE MANEUVER ITEM FILE											
CTS REF	**MANEUVER**	**C2105**	**C3101**	**C4104**	**C3201**	**C4206**	**C3301**	**C4390**	**C4401**	**C3401**	**C4502**
1	General Knowledge/ Procedures	4+	4+	4+	4+	4+	4+	4+	4	4+	4+
2	Emergency Procedures	3+	3+	3+	3+	4+	3+	4+	4	4+	4+
2	Start Malfunctions	4+	4	4+	4+	4+	4	4		4+	4
2	Windmilling Airstart				2	3+					
2	Starter-Assisted Airstart				2	3+					
3	Headwork/Situational Awareness	2+	2+	3+	3+	4+	4+	4+	4	3+	4+
4	Basic Air Work	3+	2+	3+	3+	4+	3+	4+	4	3+	4+
5	Mission Planning/ Briefing/Debriefing	3+	3+	3+	3+	3+	3+	3+		3+	3+
6	Ground Operations	3+	3+	3+	3+	4+	4+	4		4+	4+
7	Takeoff	3+	3+	3+	3+	4+	4+	4+		3+	4+
8	Aborted Takeoff	2+	2	3+	3+	4+	4+	4		3+	4+

MIF continued on next page.

CONTACT STAGE MANEUVER ITEM FILE											
CTS REF	**MANEUVER**	**C2105**	**C3101**	**C4104**	**C3201**	**C4206**	**C3301**	**C4390**	**C4401**	**C3401**	**C4502**
9	Departure		3+	3+	3+	4+	4+	4		3+	4+
10	SSE at Altitude		2	2+	2	3		3			
11	Dynamic Engine Cut	2	2	2+	2+	4+	4	4+			
12	LSC		3+	4+			4	4			
12	Turn Pattern		3+	4+	4	4	4	4			
12	Slow Flight		3+	4+	4	4	4	4			
12	Approach to Stalls		2+	4+	4	4+	4	4+			
12	SSE Waveoff at Altitude		2	2+	2	3		3			
14	Emergency Descent		2	3+	3	3+					
15	Power On Ditch	2+	2	3+	3	4+	3	4			
15	SSE Ditch		2	3+	3	4+	3	4			
15	Power Off Ditch		2	3	3	4+	3	4			
17	In-Flight Planning		3+	3+	3+	4+		4+			
18	Cockpit Procedures	4+	4+	4+	4+	4+	4+	4+		4+	4+
19	Radio Communications	2+	2+	3+	3+	3+	3	3+	3	3+	3+
23	Overhead/Break Entry		2+	3+	3+	4+		4		3+	4+
24	Course Rules		3+	3+	3+	4+		4		4	4
31	Waveoff		2+	3+	3+	4+	4	4+		3+	4+
31	SSE Waveoff		2	2	2	4+	3	4+		3+	4+
32	Landing Pattern		2+	4+	4+	4+		4+		3+	4+
32	No-Flap Pattern		2+	3+	3+	4+		4+		3+	4+
33	SSE Landing Pattern		2	2+	2+	4+		4+		3+	4+
34	Landing		2+	3+	3+	4+		4+		3+	4+
34	NFL		2+	3+	3+	4+		4+		3+	4+
34	FFL		2+	3+	3+	3+		3		3+	3+
34	SSE Landing		2	2+	2+	4+		4+		3+	4+

MIF continued on next page.

CONTACT STAGE MANEUVER ITEM FILE											
CTS REF	**MANEUVER**	**C2105**	**C3101**	**C4104**	**C3201**	**C4206**	**C3301**	**C4390**	**C4401**	**C3401**	**C4502**
35	Touch and Go		2+	3+	3+	4+		4+		3+	4+
36	SSE Full Stop				2	3+					
37	Pilot Flying/CRM	2+	2+	3+	3+	3+	3+	3+	3	3+	3+
38	Pilot Monitoring/ CRM	2	2+	3+	3+	3+	3	3+	3	3+	3+
48	Clearing		3+	4+	4+	4+		4+		4+	4+
	Special Syllabus Requirements	1		1		1					1

Blk #	Media	Title	Events	Hrs	Blk Name
C01	Flight Line	Contact Brief	1	5.0	DCONFP

1. Prerequisite. G0104 (Academic Indoctrination).

2. Events

C0101	Flight Line	Contact Brief	5.0

3. Syllabus Notes

a. C0101 has no required location, but the briefing should include a visit to Base Ops/Weather Shop, Aircraft Issue, the squadron briefing spaces, and the aircraft.

b. Although not required, C2105 will normally be completed prior to C0101.

4. Discuss Items. CRM – seven skills and callouts, FTI/NATOPS manual use (verify changes posted), local operations, flight schedule, PIC/CRM, observer duties, safety/standardization programs, weight and balance, performance charts, go/no-go criteria, Training Time Out policy, ditching, forced landing, area and course rules familiarization, FAA Letter of Agreement, squadron SOP, squadron standardization notes, Wing SOP, TAS operation, headset operation, personal and emergency equipment, aircraft interior/exterior inspection, emergency egress procedures, SDO indoctrination, and oxygen system operation and requirements.

Blk #	Media	Title	Events	Hrs	H/X
C21	UTD	Cockpit Procedures	5	7.5	1.5

1. Prerequisites

a. G0202 (Sensory Problems/Spatial Disorientation).

b. G0218 (Review Flight Planning).

c. G0390 (T-44C Aircraft Systems Exam).

d. G0330 (T-44C Aircraft Systems Exam Review).

e. G0334 (T-44C Simulator Brief).

f. G0490 (T-44C Aerodynamics Exam).

g. All G06 events (Flight Procedures block).

2. Syllabus Notes

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

b. Multiple items are listed as discuss items. Due to time constraints, it will not be possible to discuss all items prior to the simulator event (SIM); therefore, a ***Discuss Item*** may be addressed during the SIM and/or prior to the SIM.

c. During all C21XX events, each normal checklist should be performed if it has been previously introduced or discussed.

3. Special Syllabus Requirements

C2103
Mechanical stops in throttle quadrant.

C2105
V_{mca} demo.

4. Discuss Items

C2101
Seat/rudder pedal adjustment, fuel management panel, pilot instrument panel, engine instruments and switches, center instrument panel, annunciator panel/analysis, right seat instrument panel, circuit breaker panels, control pedestal, overhead control panel, MFD, checklists: before start, engine start, after start, brake check (out of chocks), engine runup, takeoff, after landing, and secure.

C2102
Takeoff procedures, checklist management, landing procedures, checklists: climb, cruise, descent, approach, landing, start malfunctions, MFD operations, and CRM callouts.

C2103
Loss of brakes, hot brakes, brake fire, mechanical stops in throttle quadrant, inadvertent condition lever to fuel cutoff, engine failure at altitude, anti-ice/deice systems, windshield heating failure, autopilot disengagement, and ground emergencies.

C2104
Flap malfunctions, no-flap landings, gear malfunctions, unsafe gear/gear up landings, dynamic engine cut, engine failure/fire during or after takeoff, in-flight damage/bird strikes, and electrical malfunctions.

C2105
Wing/uncontrollable fire, V_{mca} demo, fuel system malfunctions, engine malfunctions, smoke/fume emergencies, propeller malfunctions, ditching, and airstarts.

5. Block MIF

CTS REF	MANEUVER	C2105
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
2	Start Malfunctions	4+
3	Headwork/Situational Awareness	2+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	3+
7	Takeoff	3+
8	Aborted Takeoff	2+
11	Dynamic Engine Cut	2
15	Power On Ditch	2+
18	Cockpit Procedures	4+
19	Radio Communications	2+
37	Pilot Flying/CRM	2+
38	Pilot Monitoring/CRM	2
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
C31	OFT	Contact	1	1.5	1.5

1. Prerequisites

a. C2105.

b. G0701 (Seven CRM Skills).

c. C0101 (Contact Brief).

2. Syllabus Notes

a. This event should concentrate on basic air work, high-work maneuvers, landing patterns, and checklist management.

b. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Basic air work, high-work maneuvers, landing patterns, and checklist management.

5. Block MIF

CTS REF	MANEUVER	C3101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
2	Start Malfunctions	4
3	Headwork/Situational Awareness	2+
4	Basic Air Work	2+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	3+
7	Takeoff	3+
8	Aborted Takeoff	2

MIF continued on next page.

CTS REF	MANEUVER	C3101
9	Departure	3+
10	SSE at Altitude	2
11	Dynamic Engine Cut	2
12	LSC	3+
12	Turn Pattern	3+
12	Slow Flight	3+
12	Approach to Stalls	2+
12	SSE Waveoff at Altitude	2
14	Emergency Descent	2
15	Power On Ditch	2
15	SSE Ditch	2
15	Power Off Ditch	2
17	In-Flight Planning	3+
18	Cockpit Procedures	4+
19	Radio Communications	2+
23	Overhead/Break Entry	2+
24	Course Rules	3+
31	Waveoff	2+
31	SSE Waveoff	2
32	Landing Pattern	2+
32	No-Flap Pattern	2+
33	SSE Landing Pattern	2
34	Landing	2+
34	NFL	2+
34	FFL	2+
34	SSE Landing	2
35	Touch and Go	2+
37	Pilot Flying/CRM	2+
38	Pilot Monitoring/CRM	2+
48	Clearing	3+

Blk #	Media	Title	Events	Hrs	H/X
C41	T-44C	Contact	4	8.0	2.0

1. Prerequisite. C3101.

2. Syllabus Notes

a. This block should concentrate on basic air work, high work maneuvers, landing patterns, and checklist management.

b. On-wing flights will be C4101-4.

c. On-wing SMAs shall taxi aircraft for all of C4100 block.

d. On a flight where a system is briefed, the SMA shall be given a simulated malfunction associated with that system.

e. Complete a minimum of two passes in landing pattern per event with IP as PF and SMA as PM.

3. Special Syllabus Requirements

C4101
Oxygen mask familiarization and utilization.

4. Discuss Items

C4101
Outside scan techniques, see and avoid, takeoff, crosswind takeoff and landing, aborted takeoff, landing pattern, full-stop landings, touch-and-go procedures, Training Time Out, NATOPS brief, dual engine waveoffs, aircraft engine operating limits, engine start procedures, abnormal starts/malfunctions, and brake system/malfunctions.

C4102
Porpoised landings, aircraft airframe operating limits, full-flap landings, engine fire on deck, MFD operation, stalls/spin recovery, and fuel system/malfunctions.

C4103
Lost communications (VFR), smoke and fire of unknown origin, oxygen system use, emergency descent, smoke and fume elimination, no-flap landings, and electrical system/malfunctions.

C4104
Engine system/malfunctions, engine failure during takeoff, engine failure after takeoff, dynamic engine cut, ditching - power on, right-hand pattern, SSE at altitude, night/IMC ditch versus day VMC ditch, SSE ditching, SSE pattern work, and SSE landings/waveoffs/touch-and-go.

5. Block MIF

CTS REF	MANEUVER	C4104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
2	Start Malfunctions	4+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	3+
7	Takeoff	3+
8	Aborted Takeoff	3+
9	Departure	3+
10	SSE at Altitude	2+
11	Dynamic Engine Cut	2+
12	LSC	4+
12	Turn Pattern	4+
12	Slow Flight	4+
12	Approach to Stalls	4+
12	SSE Waveoff at Altitude	2+

MIF continued on next page.

CTS REF	MANEUVER	C4104
14	Emergency Descent	3+
15	Power On Ditch	3+
15	SSE Ditch	3+
15	Power Off Ditch	3
17	In-Flight Planning	3+
18	Cockpit Procedures	4+
19	Radio Communications	3+
23	Overhead/Break Entry	3+
24	Course Rules	3+
31	Waveoff	3+
31	SSE Waveoff	2
32	Landing Pattern	4+
32	No-Flap Pattern	3+
33	SSE Landing Pattern	2+
34	Landing	3+
34	NFL	3+
34	FFL	3+
34	SSE Landing	2+
35	Touch and Go	3+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
48	Clearing	4+
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
C32	OFT	Emergency Contact	1	1.5	1.5

1. Prerequisite. C4104.

2. Syllabus Notes. Event shall be flown with on-wing or Contact Stan IP in the right seat.

3. Special Syllabus Requirements. Complete manual gear extension.

4. Discuss Items. Emergency procedures, simulated emergency scenarios, CRM during simulated emergencies.

5. Block MIF

CTS REF	MANEUVER	C3201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
2	Start Malfunctions	4+
2	Windmilling Airstart	2
2	Starter-Assisted Airstart	2
3	Headwork/Situational Awareness	3+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	3+
7	Takeoff	3+
8	Aborted Takeoff	3+
9	Departure	3+
10	SSE at Altitude	2
11	Dynamic Engine Cut	2+
12	Turn Pattern	4
12	Slow Flight	4

MIF continued on next page.

CTS REF	MANEUVER	C3201
12	Approach to Stalls	4
12	SSE Waveoff at Altitude	2
14	Emergency Descent	3
15	Power On Ditch	3
15	SSE Ditch	3
15	Power Off Ditch	3
17	In-Flight Planning	3+
18	Cockpit Procedures	4+
19	Radio Communications	3+
23	Overhead/Break Entry	3+
24	Course Rules	3+
31	Waveoff	3+
31	SSE Waveoff	2
32	Landing Pattern	4+
32	No-Flap Pattern	3+
33	SSE Landing Pattern	2+
34	Landing	3+
34	NFL	3+
34	FFL	3+
34	SSE Landing	2+
35	Touch and Go	3+
36	SSE Full Stop	2
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
48	Clearing	4+
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
C42	T-44C	Emergency Contact	6	10.0	See Syllabus Note c.

1. Prerequisite. C3201.

2. Syllabus Notes

a. The purpose of this block is to continue basic air work while introducing additional emergency procedures, specifically SSE work.

b. Crew Resource Management should be emphasized during all flights, especially during SSE training.

c. C4201 and C4202 – 2.0 hours per event. C4203 thru C4206 – 1.5 hours per event.

d. On-wing flights will be C4201-2.

e. Windmilling airstart shall be accomplished once during C42XX and annotated in the comments section of the ATF.

f. Starter-assisted airstart shall be accomplished once during C42XX block and annotated in the comments section of the ATF.

g. SSE full stop shall be accomplished and graded during this block following IP demonstration.

h. Complete a minimum of two passes in landing pattern per event with IP as PF and SMA as PM.

i. Where a system is briefed, the SMA should be given a simulated malfunction associated with that system.

3. Special Syllabus Requirements

C4201
SSE full-stop demo.

C4206
Right seat responsibilities as PM during three IP landings.

4. Discuss Items

C4201
Actual versus simulated engine shutdown, engine secure and restart, PIC/CRM during SSE, P-factor, starter-assisted airstart, SSE pattern work, SSE landings/waveoffs/touch and go, SSE full stop, Vmca, and landing gear system/ malfunctions.

C4202
Simulated dual engine failure, ditching - power off, windmilling airstart, landing gear manual extension, and propeller system/malfunctions.

C4203
Engine fire in flight, anti-icing system, and flight control system/malfunctions.

C4204
Aircraft operating limits, forced landing, fuel system, and environmental/pressurization system.

C4205
Engine system and electrical system.

C4206
Inadvertent IMC, right seat positioning, pilot monitoring/right seat responsibilities, and propeller system.

5. Block MIF

CTS REF	MANEUVER	C4206
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
2	Start Malfunctions	4+
2	Windmilling Airstart	3+
2	Starter-Assisted Airstart	3+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	4+
7	Takeoff	4+
8	Aborted Takeoff	4+
9	Departure	4+
10	SSE at Altitude	3
11	Dynamic Engine Cut	4+
12	Turn Pattern	4
12	Slow Flight	4
12	Approach to Stalls	4+
12	SSE Waveoff at Altitude	3
14	Emergency Descent	3+
15	Power On Ditch	4+
15	SSE Ditch	4+
15	Power Off Ditch	4+
17	In-Flight Planning	4+
18	Cockpit Procedures	4+
19	Radio Communications	3+
23	Overhead/Break Entry	4+
24	Course Rules	4+

MIF continued on next page.

CTS REF	MANEUVER	C4206
31	Waveoff	4+
31	SSE Waveoff	4+
32	Landing Pattern	4+
32	No-Flap Pattern	4+
33	SSE Landing Pattern	4+
34	Landing	4+
34	NFL	4+
34	FFL	3+
34	SSE Landing	4+
35	Touch and Go	4+
36	SSE Full Stop	3+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
48	Clearing	4+
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
C33	OFT	Contact Emergency Procedures/CRM Simulator	1	1.5	1.5

1. Prerequisite. C4204.

2. Syllabus Notes

a. At least one presentation of malfunctions for each major system should be used. In addition, instructors are encouraged to give SMAs simulated emergencies during contact maneuvers to improve basic aircraft control.

b. Emphasis will be placed on procedural knowledge, judgment, and CRM skills. With two SMAs in the simulator, PM shall be evaluated on radio communications and CRM.

c. Communications with simulated Seagull, Approach Control, or Tower are required.

d. SMAs shall follow all EP scenarios to a logical conclusion, unless the IP resets aircraft conditions.

e. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Maintaining aircraft control during emergencies, pattern considerations, communications, and CRM.

5. Block MIF

CTS REF	MANEUVER	C3301
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
2	Start Malfunctions	4
3	Headwork/Situational Awareness	4+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	4+
7	Takeoff	4+
8	Aborted Takeoff	4+
9	Departure	4+
11	Dynamic Engine Cut	4
12	LSC	4
12	Turn Pattern	4
12	Slow Flight	4
12	Approach to Stalls	4
15	Power On Ditch	3
15	SSE Ditch	3
15	Power Off Ditch	3
18	Cockpit Procedures	4+
19	Radio Communications	3
31	Waveoff	4
31	SSE Waveoff	3
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3

Blk #	Media	Title	Events	Hrs	H/X
C43	T-44C	Contact Check Ride	1	1.5	1.5

1. Prerequisites

a. C4206.

b. C3301.

2. Syllabus Notes

a. This event will be an evaluation of Contact and VFR flying involving a representative cross section of maneuvers previously presented.

b. At the discretion of IP, pilot monitoring/right seat responsibilities during three IP landings may be reaccomplished if break (Julian date – Julian date last flown) is greater than three days between C4206 and C4390.

3. Special Syllabus Requirements. None.

4. Discuss Items. CRM, pilot monitoring responsibilities, and touch-and-go abort decisions. Operation limits quiz and RDO briefing.

5. Block MIF

CTS REF	MANEUVER	C4390
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
2	Start Malfunctions	4
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	4

MIF continued on next page.

CTS REF	MANEUVER	C4390
7	Takeoff	4+
8	Aborted Takeoff	4
9	Departure	4
10	SSE at Altitude	3
11	Dynamic Engine Cut	4+
12	LSC	4
12	Turn Pattern	4
12	Slow Flight	4
12	Approach to Stalls	4+
12	SSE Waveoff at Altitude	3
15	Power On Ditch	4
15	SSE Ditch	4
15	Power Off Ditch	4
17	In-Flight Planning	4+
18	Cockpit Procedures	4+
19	Radio Communications	3+
23	Overhead/Break Entry	4
24	Course Rules	4
31	Waveoff	4+
31	SSE Waveoff	4+
32	Landing Pattern	4+
32	No-Flap Pattern	4+
33	SSE Landing Pattern	4+
34	Landing	4+
34	NFL	4+
34	FFL	3
34	SSE Landing	4+
35	Touch and Go	4+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
C44	T-44C	Student Pattern Solo	1	0.3	0.3

1. Prerequisite. C4390.

2. Syllabus Notes

a. This event should be completed immediately following the C4390 check to the maximum extent possible. The SMA will complete a minimum of three approach flap landings as briefed by the RDO.

b. If not completed within three days of C4390, a C4386 shall be completed and student must be determined again to be "Safe for Solo" prior to C4401.

3. Special Syllabus Requirements. None.

4. Discuss Item. RDO briefing.

5. Block MIF

CTS REF	MANEUVER	C4401
1	General Knowledge/Procedures	4
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4
4	Basic Air Work	4
19	Radio Communications	3
37	Pilot Flying/CRM	3
38	Pilot Monitoring/CRM	3

Blk #	Media	Title	Events	Hrs	H/X
C34	OFT	Night Contact	1	1.0	1.0

1. Prerequisite. C4401.

2. Syllabus Notes. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Night flying environment, field lighting, aircraft lighting, observer duties, outside scan techniques, see and avoid, porpoised landing, CRM guidelines/callouts, and night instrument approaches.

5. Block MIF

CTS REF	MANEUVER	C3401
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
2	Start Malfunctions	4+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	4+
7	Takeoff	3+
8	Aborted Takeoff	3+
9	Departure	3+
18	Cockpit Procedures	4+
19	Radio Communications	3+
23	Overhead/Break Entry	3+
24	Course Rules	4
31	Waveoff	3+

MIF continued on next page.

CTS REF	MANEUVER	C3401
31	SSE Waveoff	3+
32	Landing Pattern	3+
32	No-Flap Pattern	3+
33	SSE Landing Pattern	3+
34	Landing	3+
34	NFL	3+
34	FFL	3+
34	SSE Landing	3+
35	Touch and Go	3+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
C45	T-44C	Night Contact	2	3.0	1.5

1. Prerequisite. C3401.

2. Syllabus Note. An instrument approach shall be demonstrated by the IP on each event with SMA as PM, emphasizing CRM callouts and radio communications.

3. Special Syllabus Requirements

C4501
Visual approach demonstration.

4. Discuss Items

C4501
Local operations, right-hand pattern and CRM night/IMC ditching, runway/taxiway/parking signs and symbols, runway markings, and night visual approaches.

C4502
Aircraft operating limits, CRM guidelines/callouts.

5. Block MIF

CTS REF	MANEUVER	C4502
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
2	Start Malfunctions	4
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	4+
7	Takeoff	4+
8	Aborted Takeoff	4+
9	Departure	4+
18	Cockpit Procedures	4+
19	Radio Communications	3+
23	Overhead/Break Entry	4+
24	Course Rules	4
31	Waveoff	4+
31	SSE Waveoff	4+
32	Landing Pattern	4+
32	No-Flap Pattern	4+
33	SSE Landing Pattern	4+
34	Landing	4+
34	NFL	4+
34	FFL	3+
34	SSE Landing	4+
35	Touch and Go	4+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
48	Clearing	4+
	Special Syllabus Requirements	1

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Chapter V

Instrument Training

1. Matrices. The following matrix is an overview of the entire Instrument Stage. The purpose of this matrix is to provide the SMA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Stage MIF

Simulator Event
Check Ride Event

INSTRUMENT STAGE MANEUVER ITEM FILE															
CTS REF	**MANEUVER**	**I2104**	**I2202**	**I3106**	**I4104**	**I3206**	**I4204**	**I3390**	**I4304**	**I3401**	**I4403**	**I3501**	**I3601**	**I4590**	**I4601**
1	General Knowledge/ Procedures	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4
2	Emergency Procedures	3+	3+	3+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4
3	Headwork/ Situational Awareness	3+	3+	3+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4
4	Basic Air Work	4+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4
5	Mission Planning/ Briefing/ Debriefing	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4
6	Ground Operations				4+		4+	4+	4+	4+	4+			4+	
7	Instrument Takeoff	3+	3+	4+	404 +	4+	4+	4	4+	4+	4	4+	4+	4	
9	Departure	3+	3+	3+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	

MIF continued on next page.

INSTRUMENT STAGE MANEUVER ITEM FILE															
CTS REF	**MANEUVER**	**I2104**	**I2202**	**I3106**	**I4104**	**I3206**	**I4204**	**I3390**	**I4304**	**I3401**	**I4403**	**I3501**	**I3601**	**I4590**	**I4601**
12	Approach to Stalls	3+													
12	Turn Pattern	4+													
12	LSC	4+													
13	Enroute Procedures		3+	3+	3+	4+	4+	4+	4+	4+	4+			4+	
13	Point-to-Point		3+	3+	3+	3+	3+	3	4	4	4+			4	
16	Partial Panel/ESIS Approach to Stalls	3+													
16	Partial Panel/ESIS Turns, Climbs/Descents	3+													
16	Bravo Pattern	4+													
16	Charlie Pattern	4+													
16	Oscar Pattern	4+													
16	Partial Panel/ESIS Oscar Pattern	3+													
16	Yankee Pattern (SSE)	3+													
16	Unusual Attitude Recovery	4+													
16	Partial Panel/ ESIS Unusual Attitudes	4+													
17	In-Flight Planning/ Clearance Compliance	3+	3+	3+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	

MIF continued on next page.

INSTRUMENT STAGE MANEUVER ITEM FILE															
CTS REF	**MANEUVER**	**I2104**	**I2202**	**I3106**	**I4104**	**I3206**	**I4204**	**I3390**	**I4304**	**I3401**	**I4403**	**I3501**	**I3601**	**I4590**	**I4601**
18	Cockpit Procedures	3+	3+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	
19	Radio Communications	3+	3+	3+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4
20	Enroute Descent				3	3	3	3	4+	4	4			4	
21	Holding		3+	3+	3+	4+	4+	4+	4	4	4+			4	
22	High Altitude Approach			3+					3						
25	PAR		3+	3+	3+	4+	4+	4	4	4	4+			4	
25	ILS		3+	3+	3+	4+	4+	4	4	4	4+			4	
25	SSE Precision Approach					3+	3+	3	3	3	4+			4	
25, 26, 27	Partial Panel/ESIS Approach					3+	3+	3	3	3	4+			4	
26, 27	VOR		3+	3+	3+	4+	4+	4	4	4	4			4	
26, 27	TAC		3+	3+	3+	4+	4+	4	4	4	4			4	
26, 27	NDB		3	3+	3	3	3	3	3	3	3			3	
26, 27	SSE Non-Precision Approach					3+	3+	3+	3	3	4+			4	
25, 27	Needle Only Approach		3	3	3+	4+	4+	4	4	4	4+	4	4	4	
27	Localizer		3+	3+	3+	4+	4+	4	4	4	4			4	
27	Localizer Back Course		3	3+	3	4+	4	4	4	4	4			4	
27	RNAV/GPS Approach		3+	3+	3+	4+	4+	4	4	4	4+			4	
27	ASR		3+	3+	3+	4+	4+	4	4	4	4			4	
28	Circling Approach		2+	2+	3+	3+	4+	4	4	4	4+			4	

MIF continued on next page.

INSTRUMENT STAGE MANEUVER ITEM FILE															
CTS REF	**MANEUVER**	**I2104**	**I2202**	**I3106**	**I4104**	**I3206**	**I4204**	**I3390**	**I4304**	**I3401**	**I4403**	**I3501**	**I3601**	**I4590**	**I4601**
28	SSE Circling Approach					3+	3+	3	3	3	4+			4	
29	Transition to Landing		3	3	3+	4	4+	4+	4+	4	4+			4+	
4, 29	Visual Approach				3		3		3+	4	4+			4	
30	Missed Approach		3+	3+	3+	4+	4+	4+	4	4	4+			4	
30	SSE Missed Approach					3+	3+	3	4	4+	4+			4+	
30	Circling Missed Approach		2+	2+	3+	3+	4+	4	4	4	4+			4	
34	Landing				4+		4+	4+	4+	4+	4+			4+	
35	Touch and Go				4+		4+	4	4	4	4+			4	
36	SSE Full Stop									4	4+				
37	Pilot Flying/CRM	3+	3+	3+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4
38	Pilot Monitoring/ CRM	3	3	3	3+	4	4+	4	4+	4+	4+	4	4	4	4
39	Radar Operation				3		3		4+	4	4				
40	Autopilot/Flight Director Operation	3	3+	3+	3+	3+	3+	3	4+	4+	4+	4	4	4+	
41	FMS Operation		3+	3+	3+	3+	4+	4	4+	4+	4+			4	
48	Clearing				4+		4+	4+	4+	4+	4+			4+	
	Special Syllabus Requirements			1	1				1						

Blk #	Media	Title	Events	Hrs	Blk Name
I01	CAI/ Class	Instrument Brief/FMS	6	9.0	GPSFP

1. Prerequisites

a. C4104 prior to I0101.

b. I0101 prior to I0102-6 (in order).

2. Events

I0101	Lect	GPS/Radio Instrument Procedures	3.0
I0102	MIL	ME GPS FMS	1.0
I0103	Lect	T-44C Flight Director Operation	3.0
I0104	SS	T-44C Weather Radar	0.5
I0105	SS	T-44C Flight Guidance Panel	1.0
I0106	SS	T-44C Messages and Annunciations	0.5

3. Syllabus Notes

a. T-44C SMAs will complete the RCVA flight scenario during I0103.

b. The following events are to be completed on the RCVA: I0104, I0105, and I0106.

4. Discuss Items. CRM callouts, runway/taxiway/parking signs and symbols, runway markings, local flying environment, pub bag, NOTAMS, WX products, DoD FLIPs, FAR/AIM, Instrument Flight Manual, canned routes, coded departures, SIDs, Base OPS/filing, FSS, communications, the six T's, GPS approach, RAIM, approach modes, local instrument approaches, and RCVA operation/scenario.

Blk #	Media	Title	Events	Hrs	H/X
I21	UTD	Basic Instruments	4	6.0	1.5

1. Prerequisite. C3401.

2. Syllabus Notes

a. This block shall emphasize control and performance of basic instrument flight.

b. I2104 should include maneuvers incorporating autopilot/ flight director usage.

3. Special Syllabus Requirements. None.

4. Discuss Items

I2101
Instrument crosscheck, instrument takeoff, full-panel approach-to-stalls, control and performance concept.

I2102
ESIS operation, Pitot-static system, flight instrument characteristics and wet compass characteristics.

I2103
Unusual attitudes, anti-icing system, emergency/minimum fuel state and departure procedures.

I2104
TERPs, IFR Enroute Supplement, Flight Information Handbook, NOTAMs and autopilot/flight director usage.

5. Block MIF

CTS REF	MANEUVER	I2104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
7	Instrument Takeoff	3+
9	Departure	3+
12	Approach to Stalls	3+
12	Turn Pattern	4+
12	LSC	4+
16	Partial Panel/ESIS Approach to Stalls	3+
16	Partial Panel/ESIS Turns, Climbs/Descents	3+
16	Bravo Pattern	4+
16	Charlie Pattern	4+
16	Oscar Pattern	4+
16	Partial Panel/ESIS Oscar Pattern	3+
16	Yankee Pattern (SSE)	3+
16	Unusual Attitude Recovery	4+
16	Partial Panel/ESIS Unusual Attitudes	4+
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	3+
19	Radio Communications	3+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3
40	Autopilot/Flight Director Operation	3

Blk #	Media	Title	Events	Hrs	H/X
I22	UTD	Instrument Approaches	2	3.0	1.5

1. Prerequisite. I2104.

2. Syllabus Notes. None.

3. Special Syllabus Requirements. None.

4. Discuss Items

I2201
Local operations, NOTAMs (FDC: General/ARTCC/airports, facilities, procedural/special FDC, military flight safety/civilian "D" NOTAMs, NTAP, GPS, and DINS), IAF/FAF procedures (6 T's, descent, and lead turns), and CRM callouts.

I2202
IFR landing transition and approach lighting, observer IFR duties/visual clearing, spatial disorientation, UNICOM voice reports, VDP, VDA, ATIS/AWOS/ASOS, and cockpit procedures (long enroute procedures versus multiple terminal approaches/task management).

5. Block MIF

CTS REF	MANEUVER	I2202
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	4+
7	Instrument Takeoff	3+
9	Departure	3+
13	Enroute Procedures	3+

MIF continued on next page.

CTS REF	MANEUVER	I2202
13	Point-to-Point	3+
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	3+
19	Radio Communications	3+
21	Holding	3+
25	PAR	3+
25	ILS	3+
26,27	VOR	3+
26,27	TAC	3+
26,27	NDB	3
25,27	Needle Only Approach	3
27	Localizer	3+
27	Localizer Back Course	3
27	RNAV/GPS Approach	3+
27	ASR	3+
28	Circling Approach	2+
29	Transition to Landing	3
30	Missed Approach	3+
30	Circling Missed Approach	2+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3
40	Autopilot/Flight Director Operation	3+
41	FMS Operation	3+

Blk #	Media	Title	Events	Hrs	H/X
I31	OFT	Instrument Approaches	6	9.0	1.5

1. Prerequisites

a. I2202.

b. I0106 (T-44C Messages and Annunciations).

2. Syllabus Notes

a. Simulator emphasis items are:

(1) I3101 – PAR, ASR, and ILS approaches.

(2) I3102 – VOR, NDB, and TACAN approaches.

(3) I3103 – LOC and LOC-BC approaches.

(4) I3104 – GPS/FMS approaches (shall accomplish one of each) – HILO approach, "T" approach, and radar vectors. Shall see one LNAV approach, one LNAV/VNAV approach, and non-approach GPS holding.

(5) I3105 – discretion of the simulator instructor.

(6) I3106 – discretion of the simulator instructor.

b. Events shall have a minimum of three approaches per event and include at least two full procedure approaches.

c. Normal two-engine approaches should be emphasized in this block, but may introduce minor malfunctions (no partial panel/ESIS or SSE).

d. Each event shall include a minimum of one approach with the flight director and one approach without the flight director.

e. Holding should be accomplished and graded on at least three different events.

f. All events shall include a missed approach; include at least two circling missed approaches in the block.

g. SMA in right seat shall be PM and graded accordingly, emphasizing CRM callouts and radio communications.

3. Special Syllabus Requirements

I3101
Coupled approach demo.

4. Discuss Items

I3101
IAF/FAF procedures (6 T's descent, and lead turns), CRM callouts and techniques, GCA approach, PAR/ILS/ASR configuration point, ASR recommended altitudes, NAVAID characteristics (ILS, LOC, and LOC-BC (service volumes, operation principles, and NATOPS procedures and NAVAID setup (takeoff, enroute, approach, and missed approach).

I3102
Holding, FLIP (GP, FIH, and IFR enroute supplement, AP series), MFD usage, VOR, TACAN, and NDB (service volumes, operation principles, NATOPS procedures, and cockpit presentation), VOR/TAC approach procedures, NDB approach procedures, missed approach, circling procedures, and circling missed approach (determining MAP and continuation beyond MAP).

I3103
AIM, FAA Instrument Procedures Handbook, FAA Instrument Flying Handbook, NATOPS Instrument Flight Manual, SOPs, local instructions, NATOPS, LOC/LOC-BC approach (configuration, presentation, MA, and FAF identification by other than DME), reverse sensing.

I3104
GPS approach types (LNAV, LNAV/VNAV, LPV, TAA, T's, and HILO), GPS approach types (LNAV, LNAV/VNAV, LPV, TAA, T's, and HILO), GPS configuration point, RAIM, GPS sensitivity modes (enroute, terminal, and approach), overlay approach, LNAV, LNAV/VNAV, LPV, autopilot/flight director, cockpit procedures (long enroute procedures versus multiple terminal approaches/task management), feeder fix selection of IAF, missed approach holding vs HILO holding procedures.

I3105
Point-to-point navigation and NAVAID characteristics, high altitude approach/penetration.

I3106
Lost communications (FIH/LOA) (IFR - VMC versus IMC), partial panel approach/ ESIS procedures, needle only approach procedures, and SSE approach procedures (configuration, power required, and descent profile).

5. Block MIF

CTS REF	MANEUVER	I3106
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
7	Instrument Takeoff	4+
9	Departure	3+
13	Enroute Procedures	3+
13	Point-to-Point	3+
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	3+

MIF continued on next page.

CTS REF	MANEUVER	I3106
19	Radio Communications	3+
21	Holding	3+
22	High Altitude Approach	3+
25	PAR	3+
25	ILS	3+
26,27	VOR	3+
26,27	TAC	3+
26,27	NDB	3+
25,27	Needle Only Approach	3
27	Localizer	3+
27	Localizer Back Course	3+
27	RNAV/GPS Approach	3+
27	ASR	3+
28	Circling Approach	2+
29	Transition to Landing	3
30	Missed Approach	3+
30	Circling Missed Approach	2+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3
40	Autopilot/Flight Director Operation	3+
41	FMS Operation	3+
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
I41	T-44C	Instrument Approaches	4	8.0	2.0

1. Prerequisites

a. I3106.

b. C4502.

2. Syllabus Notes

a. IP shall make a note on the ATF if unable to accomplish emphasis items on appropriate flight. Weather and aircraft/ATC equipment-dependent emphasis items are:

(1) I4101 –PAR, ASR, and ILS approaches.

(2) I4102 – LOC and LOC-BC approaches.

(3) I4103 – GPS, VOR and TACAN approaches.

(4) I4104 – discretion of the IP, but should include an SMA visual approach and an IP demonstration of SSE approach/waveoff.

b. Events should have a minimum of four approaches per event and include at least two full procedure approaches. Normal two-engine approaches should be emphasized in this block, but may introduce minor malfunctions (no partial panel/ESIS or SSE).

c. SMA shall see one LNAV and one LNAV/VNAV approach in the block.

d. Each event shall include a minimum of one approach with the flight director.

e. Holding should be accomplished and graded on at least two events, one of which should be GPS holding.

f. All events shall include a missed approach and should include at least two circling missed approaches in the block.

g. Minimum of one approach per event with IP as PF and SMA as PM, emphasizing CRM callouts and radio communications. To allow SMAs additional radio communication practice, one approach during each event should be flown with the SMA handling radio communications as PF.

h. SMAs shall bring a DD-175 flight plan or FAA flight plan to correspond with the appropriate flight plan discuss item for each event in this block. This flight plan will be filled out as a practice flight plan to demonstrate the applicable knowledge of the different types of DD-175 and FAA flight plans. Additionally, during each event brief, SMAs shall fill out a DD-175 flight plan for the actual event profile as required.

3. Special Syllabus Requirements

I4104
IP demonstrate SSE approach to SSE missed approach.

4. Discuss Items

I4101
Holding, GCA approach, PAR/ILS/ASR configuration point, PAR versus ASR descent point, ASR recommended altitudes, NAVAID characteristics (ILS, LOC, LOC-BC (service volumes, operation principles, NATOPS procedures, and cockpit presentation)), ATC communication (clearance delivery, ground, tower, center, approach, tower, and ground), uncontrolled airfields (communications, canceling IFR, and procedures), holding in lieu of (HILO) PT approach, approach plate titles and notes, ATIS/AWOS/ASOS, DD-175-1, and terminal area delay DD-175.

I4102
Procedure turns (methods and types), instrument publications (DoD (NGA), FAA (NACO), Jeppesen/other), DPs (ODP/SID/vector/diverse, and uncontrolled field), VDP, VDA, landing transition, low close-in obstacles, ILS/LOC/LOC-BC approach (configuration, presentation, MA, and FAF identification by other than DME), reverse sensing, and stopover DD-175.

I4103
Point-to-point navigation; TERPS required obstacle clearance (ROC) for initial, intermediate, final, and circling phases; NAVAID characteristics (VOR, TACAN, and NDB (service volumes, operation principles, NATOPS procedures, and cockpit presentation)); VOR/TAC/NDB approach procedures; missed approach (determining MAP and continuation beyond MAP), circling procedures and circling missed approach; procedure track (arc/radial combination and teardrop); VDP; and RNAV (FMS, GPS, DME/DME, VOR/DME, and INS), and FAA flight plan.

I4104
Pilot-controlled lighting, lost communications (FIH/LOA) (IFR - VMC versus IMC), windshear, visual approach, contact approach, partial panel/ESIS approach procedures, needle only approach procedures, SSE approach procedures, TERPS (FAA Order 8260.3B), Trouble T (OIS, low close-in obstacles, climb gradients, alternate routing, nonstandard takeoff weather minimums, and VCOA).

5. Block MIF

CTS REF	MANEUVER	I4104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Instrument Takeoff	4+
9	Departure	3+
13	Enroute Procedures	3+
13	Point-to-Point	3+

MIF continued on next page.

CTS REF	MANEUVER	I4104
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	4+
19	Radio Communications	3+
20	Enroute Descent	3
21	Holding	3+
25	PAR	3+
25	ILS	3+
26,27	VOR	3+
26,27	TAC	3+
26,27	NDB	3
25,27	Needle Only Approach	3+
27	Localizer	3+
27	Localizer Back Course	3
27	RNAV/GPS Approach	3+
27	ASR	3+
28	Circling Approach	3+
29	Transition to Landing	3+
4,29	Visual Approach	3
30	Missed Approach	3+
30	Circling Missed Approach	3+
34	Landing	4+
35	Touch and Go	4+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
39	Radar Operation	3
40	Autopilot/Flight Director Operation	3+
41	FMS Operation	3+
48	Clearing	4+
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
I32	OFT	Emergency Instrument Approaches	6	9.0	1.5

1. Prerequisite. I4104.

2. Syllabus Notes

a. Simulator equipment-dependent emphasis items are emergency procedures during:

(1) I3201 – discretion of the simulator instructor.

(2) I3202 – PAR, ASR, and ILS approaches.

(3) I3203 – LOC and LOC-BC approaches.

(4) I3204 – VOR, NDB, and TACAN approaches.

(5) I3205 – GPS approaches. Shall see one LNAV and one LNAV/VNAV approach.

(6) I3206 – discretion of the simulator instructor.

b. Minimum of three approaches per event.

c. Each event shall include a minimum of one approach with the flight director.

d. Holding should be accomplished and graded on at least three different events.

e. All events shall include a missed approach; at least two circling missed approaches in the block.

f. SMA in right seat shall be PM and graded accordingly, emphasizing CRM callouts and radio communications.

3. Special Syllabus Requirements. None.

4. Discuss Items

I3201
SSE approach procedures (configuration, airspeeds/power in the descent, and descent rate), SSE circling approach/missed approach, emergency voice reports, in-flight damage/bird strikes, and partial panel/ESIS approach, propeller system/malfunctions.

I3202
Weather filing criteria, approach and landing minimums, partial panel/ESIS approach, SSE GCA approach, SSE PAR configuration point, SSE ILS approach, SSE ILS configuration point, and SSE ASR configuration point with or without recommended altitudes, avionics system/malfunctions.

I3203
SSE LOC approach, SSE LOC-BC approach, procedure track (arc/radial combination and teardrop), and partial panel/ ESIS LOC/LOC-BC, fuel system/malfunctions.

I3204
Enroute weather facilities (FSS/EFAS/METRO), STARS (filing, planning, and lost comms), SSE VOR/TAC/NDB approach procedures, SSE circling approach, SSE missed approach, and needle only VOR and TAC approach procedures, electrical system/malfunctions.

I3205
SSE GPS approach, SSE configuration point with or without VNAV, emergency voice reports (souls/fuel/emergency/ intentions), flight director malfunctions, and autopilot malfunctions/disconnect procedures, landing gear system/malfunction.

I3206
DPs (SID/ODP/vector/diverse), turbulence, windshear, and icing.

5. Block MIF

CTS REF	MANEUVER	I3206
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
7	Instrument Takeoff	4+
9	Departure	4+
13	Enroute Procedures	4+
13	Point-to-Point	3+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
20	Enroute Descent	3
21	Holding	4+
25	PAR	4+
25	ILS	4+
25	SSE Precision Approach	3+
25,26, 27	Partial Panel/ESIS Approach	3+
26,27	VOR	4+
26,27	TAC	4+
26,27	NDB	3
26,27	SSE Non-Precision Approach	3+
25,27	Needle Only Approach	4+
27	Localizer	4+
27	Localizer Back Course	4+
27	RNAV/GPS Approach	4+

MIF continued on next page.

CTS REF	MANEUVER	I3206
27	ASR	4+
28	Circling Approach	3+
28	SSE Circling Approach	3+
29	Transition to Landing	4
30	Missed Approach	4+
30	SSE Missed Approach	3+
30	Circling Missed Approach	3+
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
40	Autopilot/Flight Director Operation	3+
41	FMS Operation	3+

Blk #	Media	Title	Events	Hrs	H/X
I42	T-44C	Emergency Instrument Approaches	4	8.0	2.0

1. Prerequisite. I3206.

2. Syllabus Notes

a. Each flight should consist of a mix of approaches flown in the I4100 block.

b. Events should have a minimum of four approaches per event and include at least two full procedure approaches. Emergency procedures should be emphasized in this block.

c. Each event shall include a minimum of one approach with the flight director. SMA shall see one LNAV and one LNAV/VNAV approach in the block.

d. Holding should be accomplished and graded on at least two events, one of which should be GPS holding.

e. All events shall include a missed approach and should include at least two circling missed approaches in the block.

f. Minimum of one approach per event with IP as PF and SMA as PM, emphasizing CRM callouts and radio communications. To allow SMAs additional radio communication practice, one approach during each event should be flown with the SMA handling radio communications as PF.

g. During each event brief, SMAs shall fill out a DD-175 flight plan for the actual event profile as required.

3. Special Syllabus Requirements. None.

4. Discuss Items

I4201
Needle only VOR and TAC approach procedures, landing minimums, flight director malfunctions, autopilot malfunctions/disconnect procedures, electrical system/malfunctions, anti-ice/deice system, windshield heating, and flight control system/malfunctions.

I4202
Procedure track (arc/radial combination and teardrop), VDP, VDA, smoke and fume emergencies, smoke and fire of unknown origin, avionics system/malfunctions, and airfield diagrams and symbols.

I4203
Hazardous weather, pitot static system/malfunctions (alternate static and related avionics equipment), and engine system/malfunctions (engine failure/fire after takeoff).

I4204
STARS (filing, planning, and lost comms), fuel planning (required totals and reserve, and NATOPS performance information), fuel system/malfunctions, brake system/malfunctions, wake turbulence, windshear, PULL UP warning, and weight and balance form F.

5. Block MIF

CTS REF	MANEUVER	I4204
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+

MIF continued on next page.

CTS REF	MANEUVER	I4204
7	Instrument Takeoff	4+
9	Departure	4+
13	Enroute Procedures	4+
13	Point-to-Point	3+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
20	Enroute Descent	3
21	Holding	4+
25	PAR	4+
25	ILS	4+
25	SSE Precision Approach	3+
25,26, 27	Partial Panel/ESIS Approach	3+
26,27	VOR	4+
26,27	TAC	4+
26,27	NDB	3
26,27	SSE Non-Precision Approach	3+
25,27	Needle Only Approach	4+
27	Localizer	4+
27	Localizer Back Course	4
27	RNAV/GPS Approach	4+
27	ASR	4+
28	Circling Approach	4+
28	SSE Circling Approach	3+
29	Transition to Landing	4+
4,29	Visual Approach	3
30	Missed Approach	4+
30	SSE Missed Approach	3+

MIF continued on next page.

CTS REF	MANEUVER	I4204
30	Circling Missed Approach	4+
34	Landing	4+
35	Touch and Go	4+
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4+
39	Radar Operation	3
40	Autopilot/Flight Director Operation	3+
41	FMS Operation	4+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
I33	OFT	Midstage Instrument Check	1	1.5	1.5

1. Prerequisite. I4204.

2. Syllabus Notes

a. This event will be an evaluation of IFR procedures, involving a representative cross section of maneuvers previously presented.

b. SMAs shall bring one DD-175 flight plan per SMA and one DD-175-1 per aircraft for their planned profile to brief. SMAs shall draft a flight plan that will execute the required maneuvers for the event.

c. Event shall have a minimum of three approaches and include at least one full procedure approach.

d. Event shall include a minimum of one approach with the flight director.

e. Event shall be flown with military IP in right seat designated to give instrument check rides.

3. Special Syllabus Requirements. None.

4. Discuss Items. Operations limits quiz, IAF/FAF entry procedures (6 T's, descent, and lead turns), pressurization system/malfunctions, electrical system, and OPNAVINST 3710.7U weather filing criteria.

5. Block MIF

CTS REF	MANEUVER	I3390
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Instrument Takeoff	4
9	Departure	4+
13	Enroute Procedures	4+
13	Point-to-Point	3
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
20	Enroute Descent	3
21	Holding	4+
25	PAR	4
25	ILS	4
25	SSE Precision Approach	3
25,26, 27	Partial Panel/ESIS Approach	3
26,27	VOR	4
26,27	TAC	4
26,27	NDB	3
26,27	SSE Non-Precision Approach	3+
25,27	Needle Only Approach	4
27	Localizer	4
27	Localizer Back Course	4

MIF continued on next page.

CTS REF	MANEUVER	I3390
27	RNAV/GPS Approach	4
27	ASR	4
28	Circling Approach	4
28	SSE Circling Approach	3
29	Transition to Landing	4+
30	Missed Approach	4+
30	SSE Missed Approach	3
30	Circling Missed Approach	4
34	Landing	4+
35	Touch and Go	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
40	Autopilot/Flight Director Operation	3
41	FMS Operation	4
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
I43	T-44C	Cross-Country	4	16.0	4.0

1. Prerequisites

a. I3390.

b. G0890 (IFR Final Exam).

2. Syllabus Notes

a. Shall be conducted out of the local area concentrating on enroute cross-country navigation with a minimum of two approaches conducted per event or a total of eight approaches. Flight director shall be used for one approach per event. Autopilot with flight director should be used during this block.

b. Should be flown above FL180 to emphasize high altitude enroute navigation.

c. The CNATRAINST 1500.4H limit for the *maximum SMA instructional flight hours in one day* is removed for this block only. SMA shall not exceed the 12-hour workday.

d. I4301 and I4303 are right seat events for SMA.

e. Should fly a SID and a STAR during the block.

3. Special Syllabus Requirement

I4301
Demonstrate weather radar procedures.

4. Discuss Items

I4301
CRM Seven Skills, callouts, ATC communications (clearance delivery, ground, tower, center, approach, tower, and ground), preflight planning (nav bag, fuel planning/packet, weight and balance, NOTAMS (destination, alternates, and enroute), OPNAVINST 3710.7U weather filing criteria, DD-175, DD-175-1, OPARS, AIRMETS, and SIGMETS), unfamiliar field operations, and MFD operation.

I4302
DPs (ODP/SID/vector/diverse), checklist management, enroute charts, airfield markings and lighting, STARs (filing, planning, and lost comms), enroute weather facilities (FSS/EFAS/METRO), airport diagrams and symbols, circling and circling missed approach (TAS considerations), and securing/RON procedures.

I4303
FAA flight plan, contacting FSS, performance data, anti-icing systems, RNP, lost communications (enroute/VMC versus IMC), and course deviations for weather.

I4304
Filing in flight, SSE enroute, FMS enroute navigation, wake turbulence, arrival transition, and procedure turn (holding technique).

5. Block MIF

CTS REF	MANEUVER	I4304
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Instrument Takeoff	4+
9	Departure	4+
13	Enroute Procedures	4+
13	Point-to-Point	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
20	Enroute Descent	4+
21	Holding	4
22	High Altitude Approach	3
25	PAR	4
25	ILS	4
25	SSE Precision Approach	3
25,26, 27	Partial Panel/ESIS Approach	3
26,27	VOR	4
26,27	TAC	4
26,27	NDB	3
26,27	SSE Non-Precision Approach	3
25,27	Needle Only Approach	4
27	Localizer	4

MIF continued on next page.

CTS REF	MANEUVER	I4304
27	Localizer Back Course	4
27	RNAV/GPS Approach	4
27	ASR	4
28	Circling Approach	4
28	SSE Circling Approach	3
29	Transition to Landing	4+
4,29	Visual Approach	3+
30	Missed Approach	4
30	SSE Missed Approach	4
30	Circling Missed Approach	4
34	Landing	4+
35	Touch and Go	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4+
39	Radar Operation	4+
40	Autopilot/Flight Director Operation	4+
41	FMS Operation	4+
48	Clearing	4+
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
I34	OFT	Advanced Emergency Instrument Approaches	1	1.5	1.5

1. Prerequisite. I4304.

2. Syllabus Notes

a. This event is a scenario-based, comprehensive review of instrument procedures, involving a representative cross section of IFR approaches, and will prepare the student for initial instrument rating. It should include degradation of aircraft systems, avionics automation, and IP/PM CRM. It must emphasize the following: CRM, PIC decision making, situational awareness, instrument proficiency, and multi-engine airmanship.

b. Minimum of one approach event with IP as PF and SMA as PM, emphasizing CRM callouts and radio communications. To allow SMAs additional radio communication practice, one approach during event should be flown with the SMA handling radio communications as PF.

c. The event should have a minimum of four approaches per event, including a minimum of two non-local.

d. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. V_{mca}, V_{mcg}, PIC decision making, WW versus convective sigmet, approach lighting, weight and balance form F, and other discussion items at the discretion of the IP.

5. Block MIF

CTS REF	MANEUVER	I3401
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Instrument Takeoff	4+
9	Departure	4+
13	Enroute Procedures	4+
13	Point-to-Point	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
20	Enroute Descent	4
21	Holding	4
25	PAR	4
25	ILS	4
25	SSE Precision Approach	3
25,26, 27	Partial Panel/ESIS Approach	3
26,27	VOR	4
26,27	TAC	4
26,27	NDB	3
26,27	SSE Non-Precision Approach	3
25,27	Needle Only Approach	4
27	Localizer	4
27	Localizer Back Course	4

MIF continued on next page.

CTS REF	MANEUVER	I3401
27	RNAV/GPS Approach	4
27	ASR	4
28	Circling Approach	4
28	SSE Circling Approach	3
29	Transition to Landing	4
4,29	Visual Approach	4
30	Missed Approach	4
30	SSE Missed Approach	4+
30	Circling Missed Approach	4
34	Landing	4+
35	Touch and Go	4
36	SSE Full Stop	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4+
39	Radar Operation	4
40	Autopilot/Flight Director Operation	4+
41	FMS Operation	4+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
I44	T-44C	Advanced Emergency Instrument Approaches	3	6.0	2.0

1. Prerequisite. I3401.

2. Syllabus Notes

a. This block is a scenario-based, comprehensive review of instrument procedures, involving a representative cross section of IFR approaches, and will prepare the student for initial instrument rating. Each event should include degradation of aircraft systems, avionics automation, and IP/PM CRM. These events must emphasize the following: CRM, PIC decision making, situational awareness, instrument proficiency, and multi-engine airmanship.

b. SMAs shall contact the IP prior to the event for an assignment related to flight. If the IP is unavailable, contact the CDO for an assignment. SMAs shall bring one DD-175 flight plan per SMA and one DD-175-1 per aircraft for their planned profile to every brief. SMAs shall draft a flight plan that will execute the required maneuvers for the event(s).

c. Minimum of one approach per event with IP as PF and SMA as PM, emphasizing CRM callouts and radio communications. To allow SMAs additional radio communication practice, one approach during each event should be flown with the SMA handling radio communications as PF.

d. Should have a minimum of four approaches per event, including a minimum of two non-local.

3. Special Syllabus Requirements. None.

4. Discuss Items

I4401
Airspace and RVSM, weight and balance form F, “land as soon as practicable versus possible,” RNP, and other discussion items at the discretion of the IP.

I4402
Student brief CRM case study, threat and error management, CRM, ORM, and other discussion items at the discretion of the IP.

I4403
Density altitude considerations (true airspeed, descents required, and circling rate of turn), instrument rating request form OPNAVINST 3710/2 and other discussion items at the discretion of the IP.

5. Block MIF

CTS REF	MANEUVER	I4403
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Instrument Takeoff	4
9	Departure	4+
13	Enroute Procedures	4+
13	Point-to-Point	4+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
20	Enroute Descent	4
21	Holding	4+
25	PAR	4+
25	ILS	4+
25	SSE Precision Approach	4+

MIF continued on next page.

CTS REF	MANEUVER	I4403
25,26, 27	Partial Panel/ESIS Approach	4+
26,27	VOR	4
26,27	TAC	4
26,27	NDB	3
26,27	SSE Non-Precision Approach	4+
25,27	Needle Only Approach	4+
27	Localizer	4
27	Localizer Back Course	4
27	RNAV/GPS Approach	4+
27	ASR	4
28	Circling Approach	4+
28	SSE Circling Approach	4+
29	Transition to Landing	4+
4,29	Visual Approach	4+
30	Missed Approach	4+
30	SSE Missed Approach	4+
30	Circling Missed Approach	4+
34	Landing	4+
35	Touch and Go	4+
36	SSE Full Stop	4+
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4+
39	Radar Operation	4
40	Autopilot/Flight Director Operation	4+
41	FMS Operation	4+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
I35	OFT	Instrument Emergency Procedures Simulator	1	1.5	1.5

1. Prerequisite. I4201.

2. Syllabus Notes

a. Event will include various aircraft and instrument malfunctions.

b. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Simulated scenario background.

5. Block MIF

CTS REF	MANEUVER	I3501
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
7	Instrument Takeoff	4+
9	Departure	4+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
25,27	Needle Only Approach	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
40	Autopilot/Flight Director Operation	4

Blk #	Media	Title	Events	Hrs	H/X
I36	OFT	CRM Simulator	1	1.5	1.5

1. Prerequisite. I3501.

2. Syllabus Notes

a. Event will include various aircraft and instrument malfunctions.

b. The event will consist of a real world scenario commencing at crew brief/takeoff. Emphasis will be placed on procedural knowledge, judgment, and crew resource management skills. PM SMA shall be graded on CRM, radio communications, and callouts. The scenario will be carried through to a logical conclusion.

c. IP or CIS, CRM-I or CRM-F, shall evaluate SMA IAW OPNAVINST 1542.7C. Upon successful completion, CRM-I or CRM-F shall record flight evaluation on CRM Training/Evaluation Record for inclusion in SMA's NATOPS jacket. IP or CIS shall include on ATF "Successful completion of initial CRM evaluation IAW COMNAVAIRFORINST 1542.7A."

3. Special Syllabus Requirements. None.

4. Discuss Items. CRM and simulated scenario background.

5. Block MIF

CTS REF	MANEUVER	I3601
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
7	Instrument Takeoff	4+
9	Departure	4+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
25,27	Needle Only Approach	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
40	Autopilot/Flight Director Operation	4

Blk #	Media	Title	Events	Hrs	H/X
I45	T-44C	NATOPS Instrument Check Ride	1	1.8	1.8

1. Prerequisites

a. I4403.

b. I3601.

2. Syllabus Notes

a. This event will be a comprehensive evaluation of IFR procedures, involving a representative cross section of instrument approaches and emergency procedures.

b. Complete a minimum of four approaches to include one precision and one non-precision approach.

c. SMAs are required to bring a completed instrument rating request form to the brief.

d. IFR final must be within previous 60 days.

e. IP shall include "Safe for Solo" on the ATF for a satisfactory complete event.

f. Event shall be flown IAW OPNAVINST 3710.7U and the NATOPS Instrument Flight Manual. Successful completion shall lead to issuance of OPNAV 3710/2 initial Standard Instrument Rating.

3. Special Syllabus Requirements. None.

4. Discuss Items. Instrument rating request form OPNAVINST 3710/2, Trouble T (OIS, low close-in obstacles, climb gradients, alternate routing, nonstandard takeoff weather minimums, and VCOA), operations limits quiz, and additional discussion items at the discretion of the IP.

5. Block MIF

CTS REF	MANEUVER	I4590
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Instrument Takeoff	4
9	Departure	4+
13	Enroute Procedures	4+
13	Point-to-Point	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
20	Enroute Descent	4
21	Holding	4
25	PAR	4
25	ILS	4
25	SSE Precision Approach	4
25,26, 27	Partial Panel/ESIS Approach	4
26,27	VOR	4
26,27	TAC	4
26,27	NDB	3
26,27	SSE Non-Precision Approach	4
25,27	Needle Only Approach	4
27	Localizer	4
27	Localizer Back Course	4

MIF continued on next page.

CTS REF	MANEUVER	I4590
27	RNAV/GPS Approach	4
27	ASR	4
28	Circling Approach	4
28	SSE Circling Approach	4
29	Transition to Landing	4+
4,29	Visual Approach	4
30	Missed Approach	4
30	SSE Missed Approach	4+
30	Circling Missed Approach	4
34	Landing	4+
35	Touch and Go	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
40	Autopilot/Flight Director Operation	4+
41	FMS Operation	4
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
I46	T-44C	Solo Airways Navigation	1	2.0	2.0

1. Prerequisite. I4590.

2. Syllabus Notes

a. I4601 must be accomplished within three days of I4590. If break is greater than three days, an I4586 shall be completed and student must be determined again to be "Safe for Solo" prior to I4601.

b. Conduct airways navigation solo brief with Command Duty Officer.

3. Special Syllabus Requirements. None.

4. Discuss Items. None.

5. Block MIF

CTS REF	MANEUVER	I4601
1	General Knowledge/Procedures	4
2	Emergency Procedures	4
3	Headwork/Situational Awareness	4
4	Basic Air Work	4
5	Mission Planning/Briefing/ Debriefing	4
19	Radio Communications	4
37	Pilot Flying/CRM	4
38	Pilot Monitoring/CRM	4

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Chapter VI

Navigation Training

1. Matrices. The following matrices are an overview of the entire Navigation Stage for each track, except USN P-3/P-8, USCG, and E-6. USN P-3/P-8 and USCG are only a single matrix and Navigation training does not apply to E-6 SMAs. The purpose of these matrices is to provide the SMA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Stage MIF (USMC C-130, Tiltrotor*)

Simulator Event

NAVIGATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**N3101***	**N4202**
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	4+	4+
3	Headwork/Situational Awareness	4+	4+
4	Basic Air Work	4+	4+
5	Mission Planning/Briefing/ Debriefing	4+	4+
6	Ground Operations	4	4+
17	In-Flight Planning/Clearance Compliance	4+	4+
18	Cockpit Procedures	3+	4+
19	Radio Communications	4+	4+
34	Right Seat Landings	3	3
37	Pilot Flying/CRM	3+	4+
38	Pilot Monitoring/CRM	3+	4+

MIF continued on next page.

NAVIGATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**N3101***	**N4202**
39	Radar Operation	3	3
41	FMS Operation	3	4
47	Chart Preparation	3+	4+
47	Modified Contour/Navigation Procedures	3+	3+
47	Low-Level Navigation	3	3+
47	Penetration Descent	3+	3
47	Enroute Time Control	3	4+
47, 44	Slowdown/Airdrop/Escape/LZ	3	3+
48	Clearing	4+	4+

*Tiltrotor SMAs complete only N3101.

Blk #	Media	Title	Events	Hrs	Blk Name
N01	Class	Joint Mission Planning System	2	16.0	LLNAVFP

1. Prerequisite. G0590 (VNAV Exam).

2. Events

N0101	MIL	JMPS Lecture, Part 1	8.0
N0102	MIL	JMPS Lecture, Part 2	8.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
N02	Class	Low-Level Ground School	1	1.0	LLNAVFP

1. Prerequisites. N0101-2 (JMPS) (in order).

2. Events

N0201 MIL Low-Level Navigation Procedures 1.0

3. Syllabus Note. Read LL portion of LL/TF FTI (P-557) before class and be prepared to create charts.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
N41	T-44C	Over Water Navigation	1	2.0	2.0

1. Prerequisite. I4601.

2. Syllabus Notes

a. N41 applicable to USN P-3/P-8 and USCG only.

b. SMA will create a composite flight plan and IP will review.

c. Call IP the night prior to flight to coordinate planning.

d. SMA required to complete two quick rigs and two eight-point rigs.

3. Special Syllabus Requirements. None.

4. Discuss Items. Sea state, SSC, OPNAVINST 3710 survival conditions, controlling agencies, rigging procedures, operations below 1000 feet AWL, composite flight plan, ADIZ procedures, lost aircraft, and ditching procedures.

5. Block MIF

CTS REF	MANEUVER	N4101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	4+
7	Takeoff	4
9	Departure	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
29	Transition to Landing	4
34	Landing	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
39	Radar Operation	3
42	Composite Flight Plan	4+
42	Proceed VFR	4+
42	VFR Descent	4+
42	VFR Climb	4+
42	IFR Pickup	4+
42	Fuel Planning	4+
42,43	Rigging Procedures	4+
42,43	Operations Below 1000 Feet AWL	4+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
N31	OFT	Low-Level Navigation	1	1.5	1.5

1. Prerequisite. N0201 (Low-Level Ground School).

2. Syllabus Notes

a. N31 applicable to USMC C-130 and Tiltrotor only.

b. A high-altitude penetration descent to an airfield should be accomplished following the route.

c. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Low-level mission brief, turnpoint briefs, enroute timing control techniques, slow down, airdrop, escape, penetration descent, LZ procedures, JOG/TPC charts, CHUM, student chart critique, CRM during airdrops, and modified contour/navigation procedures.

5. Block MIF

CTS REF	MANEUVER	N3101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	3+
19	Radio Communications	4+
34	Right Seat Landings	3
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
39	Radar Operation	3
41	FMS Operation	3
47	Chart Preparation	3+
47	Modified Contour/Navigation Procedures	3+
47	Low-Level Navigation	3
47	Penetration Descent	3+
47	Enroute Time Control	3
47,44	Slowdown/Airdrop/Escape/LZ	3
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
N42	T-44C	Low-Level Navigation	2	4.0	2.0

1. Prerequisite. N3101.

2. Syllabus Notes

a. N42 applicable to USMC C-130 only.

b. One route per flight based on a TOT to a DZ followed by an LZ arrival.

c. Call the IP the night prior to the flight to confirm route planning.

d. SMA sits in the right seat for N42.

3. Special Syllabus Requirements. None.

4. Discuss Items

N4201
Low-level mission brief, JOG/TPC charts, CHUM, SMA chart critique, pilot monitoring duties during airdrops, BASH, USBAM, and penetration descent.

N4202
Low-level mission brief, off-course maneuvering, advanced low-level navigation techniques, and visual disparity at different altitudes.

5. Block MIF

CTS REF	MANEUVER	N4202
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
34	Right Seat Landings	3
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4+
39	Radar Operation	3
41	FMS Operation	4
47	Chart Preparation	4+
47	Modified Contour/Navigation Procedures	3+
47	Low-Level Navigation	3+
47	Penetration Descent	3
47	Enroute Time Control	4+
47,44	Slowdown/Airdrop/Escape/LZ	3+
48	Clearing	4+

Chapter VII

Formaton Training

1. Matrices. The following matrices are an overview of the entire Formation Stage for the USN P-3/P-8, USCG, USMC C-130, E-6, and Tiltrotor tracks. The purpose of these matrices is to provide the SMA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description in this chapter. USCG and USMC C-130 SMAs fly F4101 only. USN P-3/P-8 and E-6 SMAs fly F4301 only. Tiltrotor will fly the F4201 only.

2. Stage MIF (USN P-3/P-8, USCG, USMC C-130, and E-6)

FORMATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**F4101***	**F4301***
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	4+	4+
3	Headwork/Situational Awareness	4+	4+
4	Basic Air Work	4+	4+
5	Mission Planning/Briefing/ Debriefing	4+	4+
6	Ground Operations	4+	4+
7	Formation Takeoff	4	4
7	FMS Operation		4
9	Departure	4	4
17	In-Flight Planning/Clearance Compliance	4+	4+
18	Cockpit Procedures	4+	4+
19	Radio Communications	4+	4+

MIF continued on next page.

FORMATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**F4101***	**F4301***
19	Communications		4+
24	Course Rules	4	4
24	Traffic Entry		4
34	Landing	4	4
37	Pilot Flying/CRM	4+	4+
38	Pilot Monitoring/CRM	4	4
46	Running Rendezvous	3+	3+
46	Parade Position	3+	3+
46	Parade Turns	3+	3+
46	Crossunder	3+	3+
46	Free Cruise	3	3
46	Breakup and Rendezvous	3+	3+
46	Maritime Lead Change	3+	3+
46	Maritime Lead	3+	3+
48	Clearing	4+	4+
52	Tanker Procedures		4
52	Receiver Procedures		4+
52	RV Delta (Point Parallel) Rendezvous		4+
52	RV Golf (Enroute) Rendezvous		4
52	Alternate Rendezvous		4
52	Anchor Refueling Procedures		4
52	Track Refueling Procedures		4
52	Rendezvous Overrun/Underrun		4
52	Precontact Position		4+

MIF continued on next page.

FORMATION STAGE MANEUVER ITEM FILE			
CTS REF	**MANEUVER**	**F4101***	**F4301***
52	Contact Position		4+
52	Boom Limits Demonstration		4

* USCG and USMC C-130 SMAs fly only F41 block. USN P-3/P-8 and E-6 SMAs fly only F43 block.

3. Stage MIF (Tiltrotor)

Simulator Event

FORMATION STAGE MANEUVER ITEM FILE (TILTROTOR)			
CTS REF	**MANEUVER**	**F3101**	**F4201**
1	General Knowledge/Procedures	3+	4+
2	Emergency Procedures	3+	4+
3	Headwork/Situational Awareness	3+	4+
4	Basic Air Work	3+	4+
5	Mission Planning/Briefing/ Debriefing	3+	4+
6	Ground Operations	3+	4+
7	Formation Takeoff	3	4
9	Departure	3	4
17	In-Flight Planning/Clearance Compliance	3+	4+
18	Cockpit Procedures	3+	4+
19	Radio Communications	3+	4+
24	Course Rules	3	4

MIF continued on next page.

FORMATION STAGE MANEUVER ITEM FILE (TILTROTOR)			
CTS REF	**MANEUVER**	**F3101**	**F4201**
34	Landing	3	4
37	Pilot Flying/CRM	3+	4+
38	Pilot Monitoring/CRM	3	4
46	Running Rendezvous	3+	4+
46	TACAN Rendezvous	3	3
46	Parade Position	3+	4+
46	Parade Turns	3+	4+
46	Crossunder	3+	4+
46	Cruise Position	3+	4+
46	Cruise Maneuvering	3+	4+
46	Breakup and Rendezvous	3+	4+
46	Maritime Lead Change	3+	4+
46	Maritime Lead	3+	4+
48	Clearing	3+	4+
49	Combat Cruise Position	3+	3+
49	Combat Spread Position	3+	3+
49	Tanker Rendezvous	3+	3+
49	Tactical Formation Maneuvering	3+	3+
50	Formation Navigation	3+	4+

Blk #	Media	Title	Events	Hrs	Blk Name
F01	Class	Maritime Formation Procedures	1	1.0	FORMFP

1. Prerequisite. I4601.

2. Events

F0101	Lect	Maritime Formation Procedures		1.0

3. Syllabus Note. F0101 applicable to all SMAs except Tiltrotor.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
F02	Class	Aerial Refueling Procedures	1	1.0	FORMFP

1. Prerequisite. I4601.

2. Events

F0201	Lect	Aerial Refueling Procedures	1.0

3. Syllabus Note. F0201 applicable to USN P-3/P-8, E-6, and Tiltrotor SMAs only.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
F03	Class	Tiltrotor Formation	1	1.0	FORMFP

1. Prerequisite. I4601.

2. Events

F0301	Lect	Tiltrotor Formation Ground School		1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
F41	T-44C	Maritime Formation	1	2.0	2.0

1. Prerequisite. F0101 (Maritime Formation Procedures).

2. Syllabus Notes

a. F41 applicable to USCG and USMC C-130 SMAs only.

b. Completes formation sequence IAW FTI and Formation Brief Guide.

c. All maneuvers will be demonstrated by IP and introduced to SMA. Repeat sequence with all maneuvers practiced by SMA.

3. Special Syllabus Requirements. None.

4. Discuss Items. Formation flight procedures, flight sequence, and formation emergency procedures.

5. Block MIF

CTS REF	MANEUVER	F4101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Formation Takeoff	4
9	Departure	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
24	Course Rules	4
34	Landing	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
46	Running Rendezvous	3+
46	Parade Position	3+
46	Parade Turns	3+
46	Crossunder	3+
46	Free Cruise	3
46	Breakup and Rendezvous	3+
46	Maritime Lead Change	3+
46	Maritime Lead	3+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
F31	OFT	Tiltrotor Formation	1	1.5	1.5

1. Prerequisites

   a. F0201 (Aerial Refueling Procedures).

   b. F0301 (Tiltrotor Formation Ground School).

2. Syllabus Notes

   a. F31 applicable to Tiltrotor course flow only.

   b. Students shall fly/observe maneuvers as Lead and Wing.

   c. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Ground procedures, radio procedures and frequencies, takeoff and climb procedures, initial rendezvous, operation area, parade checkpoints, combat cruise checkpoints, combat spread checkpoints, tactical formation maneuvers, tanker rendezvous procedures and voice reports, sequence of events, RTB procedures, underrun, knock-it-off, and formation emergencies.

5. Block MIF

CTS REF	MANEUVER	F3101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	3+
7	Formation Takeoff	3

MIF continued on next page.

CTS REF	MANEUVER	F3101
9	Departure	3
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	3+
19	Radio Communications	3+
24	Course Rules	3
34	Landing	3
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3
46	Running Rendezvous	3+
46	TACAN Rendezvous	3
46	Parade Position	3+
46	Parade Turns	3+
46	Crossunder	3+
46	Cruise Position	3+
46	Cruise Maneuvering	3+
46	Breakup and Rendezvous	3+
46	Maritime Lead Change	3+
46	Maritime Lead	3+
48	Clearing	3+
49	Combat Cruise Position	3+
49	Combat Spread Position	3+
49	Tanker Rendezvous	3+
49	Tactical Formation Maneuvering	3+
50	Formation Navigation	3+

Blk #	Media	Title	Events	Hrs	H/X
F42	T-44C	Tiltrotor Formation	1	2.5	2.5

1. Prerequisite. F3101.

2. Syllabus Notes

a. F42 applicable to Tiltrotor course flow only.

b. Completes formation sequence IAW FTI and Formation Brief Guide.

3. Special Syllabus Requirements. None.

4. Discuss Items. Formation flight procedures and flight sequence, formation emergency procedures, aborted takeoff, flight integrity, parade checkpoints, lead/Dash-2 responsibilities, comm. Procedures, combat cruise checkpoints, combat spread checkpoints, and tactical formation maneuvers.

5. Block MIF

CTS REF	MANEUVER	F4201
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Formation Takeoff	4
9	Departure	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
24	Course Rules	4
34	Landing	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
46	Running Rendezvous	4+
46	TACAN Rendezvous	3
46	Parade Position	4+
46	Parade Turns	4+
46	Crossunder	4+
46	Cruise Position	4+
46	Cruise Maneuvering	4+
46	Breakup and Rendezvous	4+
46	Maritime Lead Change	4+
46	Maritime Lead	4+
48	Clearing	4+
49	Combat Cruise Position	3+

MIF continued on next page.

CTS REF	MANEUVER	F4201
49	Combat Spread Position	3+
49	Tanker Rendezvous	3+
49	Tactical Formation Maneuvering	3+
50	Formation Navigation	4+

Blk #	Media	Title	Events	Hrs	H/X
F43	T-44C	Maritime Formation and Aerial Refueling Fundamentals	1	3.0	3.0

1. Prerequisites

a. F0101 (Maritime Formation Procedures).

b. F0201 (Aerial Refueling Procedures).

2. Syllabus Note. F4301 applicable to USN P-3/P-8 and E-6 SMAs only.

3. Special Syllabus Requirements. None.

4. Discuss Items.

a. Formation flight procedures, flight sequence, and formation emergency procedures.

b. Aerial refueling flight procedures, AP-1B (Chapter 4) track procedures, DD-175 filing requirements, FMS management, flight sequence, and aerial refueling emergency procedures.

5. Block MIF

CTS REF	MANEUVER	F4301
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Formation Takeoff	4
7	FMS Operation	4

MIF continued on next page.

CTS REF	MANEUVER	F4301
9	Departure	4
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
19	Communications	4+
24	Course Rules	4
24	Traffic Entry	4
34	Landing	4
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4
46	Running Rendezvous	3+
46	Parade Position	3+
46	Parade Turns	3+
46	Crossunder	3+
46	Free Cruise	3
46	Breakup and Rendezvous	3+
46	Maritime Lead Change	3+
46	Maritime Lead	3+
48	Clearing	4+
52	Tanker Procedures	4
52	Receiver Procedures	4+
52	RV Delta (Point Parallel) Rendezvous	4+
52	RV Golf (Enroute) Rendezvous	4
52	Alternate Rendezvous	4
52	Anchor Refueling Procedures	4
52	Track Refueling Procedures	4
52	Rendezvous Overrun/Underrun	4
52	Precontact Position	4+
52	Contact Position	4+
52	Boom Limits Demonstration	4

Chapter VIII

Tactical Training

1. Matrices. The following matrices are an overview of the entire Tactical Stage for each track, except USN P-3/P-8 and E-6, which do not receive Tactical Training. The purpose of these matrices is to provide the SMA and IP the easiest way to track progress, regression, and overall status in relation to the MIF. In addition, there is a single matrix following each block description throughout this chapter.

2. Stage MIF (USCG* and USMC C-130)

Simulator Event
Check Ride Event

TACTICAL TRAINING MANUEVER ITEM FILE				
CTS REF	**MANEUVER**	**T3101***	**T3201**	**T4101**
1	General Knowledge/Procedures	3+	3+	4+
2	Emergency Procedures	4+	3+	4+
3	Headwork/Situational Awareness	3+	3+	4+
4	Basic Air Work	4+	4+	4+
5	Mission Planning/Briefing/ Debriefing	3+	3+	4+
6	Ground Operations	4+	3+	4+
7	Takeoff	4		
9	Departure	4+		
17	In-Flight Planning/Clearance Compliance	3+	3+	4+
18	Cockpit Procedures	3+	3+	4+
19	Radio Communications	3+	3+	4+
25, 27	Precision/Non-Precision Approach	4		

MIF continued on next page.

TACTICAL TRAINING MANUEVER ITEM FILE				
CTS REF	**MANEUVER**	**T3101***	**T3201**	**T4101**
29	Transition to Landing	4+		
34	Landing	4+		
34	Right Seat Landings		3	3
37	Pilot Flying/CRM	3+	3+	4+
38	Pilot Monitoring/CRM	3+	3+	4+
39	Radar Operation	3	3	3
41	FMS Operation	4	4	4
42, 43	Vessel Identification Passes	3+		
42, 43	Operations Below 1000 Feet AWL	3+		
43	Scanning Techniques	3+		
43	Search Pattern	3+		
43	Survivor Relocation	3+		
43	Delivery Pattern	3+		
43	Over Water Navigation	3+		
45	Formation Radio Procedures		3+	4+
45	Wing In-Trail Position		3+	3+
45	Line Abreast Position		3+	3+
45	Fluid Trail		3+	3+
45	Wingman Consideration		3+	3+
45	Lead Change		3+	3+
45	Formation Recovery		3+	3+
47	Chart Preparation		3+	4+
47	Modified Contour/Navigation Procedures		3+	3+

MIF continued on next page.

TACTICAL TRAINING MANUEVER ITEM FILE				
CTS REF	**MANEUVER**	**T3101***	**T3201**	**T4101**
47	Pilot Monitoring Low-Level Responsibilities		3+	4+
47	Low-Level Navigation (As Lead)		3+	4+
47	Enroute Time Control (As Lead)		3+	4+
47, 44	Slowdown/Airdrop/Escape/LZ		3+	3+
48	Clearing	4+	4+	4+

*USCG SMAs fly only T31 block, not T32 or T41 blocks.

3. Stage MIF (Tiltrotor)

Simulator Event
Check Ride Event

TACTICAL STAGE MANEUVER ITEM FILE (TILTROTOR)			
CTS REF	**MANEUVER**	**T3301**	**T4203**
1	General Knowledge/Procedures	3+	4+
2	Emergency Procedures	3+	4+
3	Headwork/Situational Awareness	3+	4+
4	Basic Air Work	3+	4+
5	Mission Planning/Briefing/ Debriefing	3+	4+
6	Ground Operations	3+	4+
7	Takeoff	3	4
9	Departure	3+	4+

MIF continued on next page.

TACTICAL STAGE MANEUVER ITEM FILE (TILTROTOR)			
CTS REF	**MANEUVER**	**T3301**	**T4203**
17	In-Flight Planning/Clearance Compliance	3+	4+
18	Cockpit Procedures	3+	4+
19	Radio Communications	3+	4+
34	Landing	4+	4+
34	NFL	3	3
34	FFL	3	3
35	Touch and Go	3+	3+
37	Pilot Flying/CRM	3+	4+
46	Running Rendezvous	4	4
46	Parade/Cruise Formation	4	4
46	Underrun	4	4
46	VFR Entry to Controlled Field	3+	4+
48	Clearing	4+	4+
49	Lead Responsibilities	3+	4+
49	Dash-2 Responsibilities	3+	4+
49	Tactical Formation Maneuvering	3+	3+
49	Recovery	3+	4+
50	Course Corrections	3+	4+
50	Time Control	3+	4+
50	Formation Navigation	3+	4+
50	Chart Interpretation	3+	4+
51	Fuel Management	3+	4+

Blk #	Media	Title	Events	Hrs	Blk Name
T01	Class/ SS	Tactical Formation Ground School	2	3.0	TACFFP

1. Prerequisite. I4601 prior to T0101-2 (any order).

2. Events

T0101	SS	Tactical Formation Navigation Procedures	1.0
T0102	Lect	Tactical Formation Navigation Procedures	2.0

3. Syllabus Note. Read TF portion of LL/TF (P-557) FTI before class.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
T31	OFT	Search and Rescue Fundamentals	1	1.5	1.5

1. Prerequisite. I4601.

2. Syllabus Notes

a. T31 applicable to USCG only.

b. SMA executes a minimum of one search pattern (PS, TLS, CS, VS), one survivor relocation pattern, two ADS patterns, and two vessel identification passes (one at 200 feet AWL and one at 100 feet AWL).

c. Military IP will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Due regard, on-scene planning – fuel/winds/ endurance, National SAR Manual, search ideology and phraseology, search patterns, datum, OSC responsibilities, survivor relocation pattern, delivery patterns.

5. Block MIF

CTS REF	MANEUVER	T3101
1	General Knowledge/Procedures	3+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	4+
7	Takeoff	4
9	Departure	4+

MIF continued on next page.

CTS REF	MANEUVER	T3101
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	3+
19	Radio Communications	3+
25,27	Precision/Non-Precision Approach	4
29	Transition to Landing	4+
34	Landing	4+
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
39	Radar Operation	3
41	FMS Operation	4
42,43	Vessel Identification Passes	3+
42,43	Operations Below 1000 Feet AWL	3+
43	Scanning Techniques	3+
43	Search Pattern	3+
43	Survivor Relocation	3+
43	Delivery Pattern	3+
43	Over Water Navigation	3+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
T32	OFT	Tactical Formation	1	1.5	1.5

1. Prerequisites

a. N4202.

b. T0101-2 (Tactical Formation Ground School).

c. F4101.

2. Syllabus Notes

a. T32 applicable to USMC C-130 only. Event should be flown on an MTR.

b. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Tactical formation mission brief, formation lead changes, formation radio procedures, inadvertent weather penetration procedures, BASH, USBAM, low-level mission brief, JOG/TPC charts, CHUM, chart construction, LZ transition, tactical formation maneuvers, descent planning, IR/VR/SR routes, course/timing corrections, low altitude hazards, and MTR scheduling.

5. Block MIF

CTS REF	MANEUVER	T3201
1	General Knowledge/Procedures	3+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	3+

MIF continued on next page.

CTS REF	MANEUVER	T3201
6	Ground Operations	3+
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	3+
19	Radio Communications	3+
34	Right Seat Landings	3
37	Pilot Flying/CRM	3+
38	Pilot Monitoring/CRM	3+
39	Radar Operation	3
41	FMS Operation	4
45	Formation Radio Procedures	3+
45	Wing In-Trail Position	3+
45	Line Abreast Position	3+
45	Fluid Trail	3+
45	Wingman Consideration	3+
45	Lead Change	3+
45	Formation Recovery	3+
47	Chart Preparation	3+
47	Modified Contour/Navigation Procedures	3+
47	Pilot Monitoring Low-Level Responsibilities	3+
47	Low-Level Navigation (As Lead)	3+
47	Enroute Time Control (As Lead)	3+
47,44	Slowdown/Airdrop/Escape/LZ	3+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
T41	T-44C	Tactical Formation	1	2.5	2.5

1. Prerequisite. T3201.

2. Syllabus Notes

a. T41 applicable to USMC C-130 only.

b. When possible, event should be scheduled as a 3-ship formation.

c. Call the IP the night prior to each flight to confirm route planning.

d. SMA sits in the right seat for T41.

3. Special Syllabus Requirements. None.

4. Discuss Item: Tactical formation mission brief, formation lead changes, formation radio procedures, BASH, USBAM, inadvertent weather penetration procedures.

5. Block MIF

CTS REF	MANEUVER	T4101
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+

MIF continued on next page.

CTS REF	MANEUVER	T4101
19	Radio Communications	4+
34	Right Seat Landings	3
37	Pilot Flying/CRM	4+
38	Pilot Monitoring/CRM	4+
39	Radar Operation	3
41	FMS Operation	4
45	Formation Radio Procedures	4+
45	Wing In-Trail Position	3+
45	Line Abreast Position	3+
45	Fluid Trail	3+
45	Wingman Consideration	3+
45	Lead Change	3+
45	Formation Recovery	3+
47	Chart Preparation	4+
47	Modified Contour/Navigation Procedures	3+
47	Pilot Monitoring Low-Level Responsibilities	4+
47	Low-Level Navigation (As Lead)	4+
47	Enroute Time Control (As Lead)	4+
47,44	Slowdown/Airdrop/Escape/LZ	3+
48	Clearing	4+

Blk #	Media	Title	Events	Hrs	H/X
T33	OFT	Tiltrotor Tactical Formation	1	1.5	1.5

1. Prerequisites

a. F4201.

b. N3101.

c. T0101-2 (Tactical Formation Ground School).

2. Syllabus Notes

a. T33 applicable to Tiltrotor course flow only.

b. Conduct on a timed route to a TOT using tactical mission profile.

c. Event shall be flown as a section only.

d. Event should be flown on an MTR.

e. CI will instruct event.

3. Special Syllabus Requirements. None.

4. Discuss Items. Off-course maneuvering, advanced low-level navigation techniques, visual disparity at different altitudes, inadvertent weather penetration procedures, scatter plan, tactical formation maneuvers, IMC-to-VMC transition, rendezvous point, non-course rules VFR entry to tower-controlled field, and MTR scheduling.

5. Block MIF

CTS REF	MANEUVER	T3301
1	General Knowledge/Procedures	3+

MIF continued on next page.

CTS REF	MANEUVER	T3301
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Air Work	3+
5	Mission Planning/Briefing/ Debriefing	3+
6	Ground Operations	3+
7	Takeoff	3
9	Departure	3+
17	In-Flight Planning/Clearance Compliance	3+
18	Cockpit Procedures	3+
19	Radio Communications	3+
34	Landing	4+
34	NFL	3
34	FFL	3
35	Touch and Go	3+
37	Pilot Flying/CRM	3+
46	Running Rendezvous	4
46	Parade/Cruise Formation	4
46	Underrun	4
46	VFR Entry to Controlled Field	3+
48	Clearing	4+
49	Lead Responsibilities	3+
49	Dash-2 Responsibilities	3+
49	Tactical Formation Maneuvering	3+
49	Recovery	3+
50	Course Corrections	3+
50	Time Control	3+
50	Formation Navigation	3+
50	Chart Interpretation	3+
51	Fuel Management	3+

Blk #	Media	Title	Events	Hrs	H/X
T42	T-44C	Tiltrotor Tactical Formation	3	7.5	2.5

1. Prerequisite. T3301.

2. Syllabus Notes

a. T42 applicable to Tiltrotor course flow only.

b. Conduct all flights in block on a timed route to a TOT using tactical mission profile.

c. All events shall be flown as a section only.

d. One event should include navigation using a VFR sectional chart.

3. Special Syllabus Requirements. None.

4. Discuss Items

T4201
LZ transition, formation radio procedures, off-course maneuvering, advanced low-level navigation techniques, visual disparity at different altitudes, inadvertent weather penetration procedures, scatter plan, tactical formation maneuvers, IMC-to-VMC transition, rendezvous point, and non-course rules VFR entry to tower-controlled field.

T4202
Modified contour/navigation procedures, tactical formation maneuvers, and any emergency procedure.

T4203
IP discretion.

5. Block MIF

CTS REF	MANEUVER	T4203
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work	4+
5	Mission Planning/Briefing/ Debriefing	4+
6	Ground Operations	4+
7	Takeoff	4
9	Departure	4+
17	In-Flight Planning/Clearance Compliance	4+
18	Cockpit Procedures	4+
19	Radio Communications	4+
34	Landing	4+
34	NFL	3
34	FFL	3
35	Touch and Go	3+
37	Pilot Flying/CRM	4+
46	Running Rendezvous	4
46	Parade/Cruise Formation	4
46	Underrun	4
46	VFR Entry to Controlled Field	4+
48	Clearing	4+
49	Lead Responsibilities	4+
49	Dash-2 Responsibilities	4+
49	Tactical Formation Maneuvering	3+
49	Recovery	4+

MIF continued on next page.

CTS REF	MANEUVER	T4203
50	Course Corrections	4+
50	Time Control	4+
50	Formation Navigation	4+
50	Chart Interpretation	4+
51	Fuel Management	4+

Chapter IX

Course Training Standards (CTS)

1. Purpose. These standards outline the tasks and proficiency required of graduates of this syllabus.

2. Student Duties and Responsibilities

a. Plan the mission.

b. Ensure the aircraft is preflighted, inspected, and equipped for the assigned mission.

c. Operate the aircraft to accomplish the mission using sound judgment and airmanship.

3. General Proficiency Standards

a. Achieve training standards for VMC maneuvers in conjunction with visual clearing.

b. Unless otherwise specified, use ***Basic Air Work (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 MIF regulates SMA progression to meet required standards prior to phase completion. Instructor Pilots shall evaluate SMA performance against these standards.

5. Job Tasks. Specific performance and standards required are described as follows:

BEHAVIOR STATEMENT	STANDARDS
GRADED ITEM	
• A brief description of the behavior, required action, and/or conditions.	• The specific standards for the action. May be read as "The SMA …"

6. Graded Items. The 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	
• Maintain working knowledge of all appropriate flight training instructions and directives.	• Recites, discusses, and/or performs all applicable items essential to the operation of the airplane.
2. Emergency Procedures	
• Maintain in-depth knowledge of NATOPS and appropriate directives.	• Correctly analyzes situation. • Performs/recites critical action steps from memory. • Uses checklist when conditions permit. • Completes procedures in a timely manner.

BEHAVIOR STATEMENT	STANDARDS
3. Headwork/Situational Awareness	
• Comply with the FTI and NATOPS while maintaining situational awareness sufficient for flight safety.	• Understands instructions, demonstrations, and explanations. • Foresees and avoids possible difficulties. • Remains alert and spatially oriented.
4. Basic Air Work	
• Establish and maintain desired altitude, airspeed, and heading during flight.	• Maintains aircraft within 100 feet, 10 KIAS, 10° of heading. • Appropriately uses power, attitude, and trim. • Levels off within 100 feet of desired altitude. • Accomplishes within ±10 seconds of correct time as applicable.
5. Mission Planning/Briefing/Debriefing	
• Flight room or base operations environment.	• Plans mission in a timely manner to meet all maneuver requirements. • Acquires appropriate flight planning/weather data. • Clearly defines the mission overview and mission goals with NATOPS briefing guide. • Effectively uses the mission debriefing to reinforce skills and identify key points in mission performance.

BEHAVIOR STATEMENT	STANDARDS
6. Ground Operations	
• Begins when departing for the aircraft and ends when the power is applied for takeoff. • Begins again when aircraft clears the runway and continues until power is advanced for a subsequent takeoff or when postflight duties are complete and the aircrew is clear of the aircraft.	• Complies with NATOPS and training directives. • Determines aircraft status and TOLD. • Properly operates aircraft systems on ground. • Ensures clearance of line personnel, ground equipment, and other aircraft using appropriate signals. • Taxies aircraft at speeds commensurate with traffic and surface conditions. • Maintains taxiway boundaries (including hold-short) and gives way to other aircraft as appropriate.
7. Takeoff	
• Begins when advancing power for takeoff and ends when aircraft is safely airborne, gear and flaps are retracted, and climb power and airspeed are established.	• Checks aircraft performance IAW NATOPS. • Maintains ±10 feet of centerline. • Rotates at V_R +5/-0 knots. • Transitions to instrument flight, if required. • Smoothly accelerates to appropriate climb speed. • Maintains runway situational awareness to include Go/No-Go criteria.
8. Aborted Takeoff	
• Begins from the recognition of malfunction or possible abort condition. • Ends when aircraft is stopped and radio call is completed.	• Handles IAW NATOPS. • Verbalizes “abort” internally and on the radio. • Remains ±10 feet of centerline. • Brings aircraft smoothly to a full stop utilizing brakes and/or reverse.

BEHAVIOR STATEMENT	STANDARDS
9. Departure	
• Begins when climb airspeed is established and ends when published departure is complete or established in assigned working area. • If no published departure, begins when initiating pitch change for level-off.	• Complies with ATC/departure/ flight plan clearance or course rules, as appropriate.
10. SSE at Altitude	
• Begins with initial pitch and power setting. • Ends when aircraft is stabilized in straight-and-level flight, on climb profile (V_x or V_y), or in position for the next maneuver.	• Executes maneuver IAW NATOPS and FTI procedures.
11. Dynamic Engine Cut	
• Begins with initial pitch and power setting. • Ends when aircraft is stabilized in straight-and-level flight, on climb profile (V_x or V_y), or in position for the next maneuver.	• Executes maneuver IAW NATOPS and FTI. • Maintains ±10 degrees of heading; demonstrates appropriate rudder use. • Does not descend below initial altitude, and airspeed is never below 91 knots.

BEHAVIOR STATEMENT	STANDARDS
12. Training Area Maneuvers	
• Begins with initial pitch and power setting. • Ends when aircraft is stabilized in straight-and-level flight, on climb profile (V_x or V_y), or in position for the next maneuver.	• Executes all maneuvers IAW NATOPS and FTI. • Turn pattern/Steep turns: ±100 feet, ±5° bank, ±10 knots, rolls out ±5°. • Approach-to-stalls: (a) minimizes altitude loss, (b) once approach-to-stall is stopped, avoids secondary approach-to-stall indications, (c) performs smooth, controlled recovery. • Slow flight: +5/-0 knots, ±100 feet.
13. Enroute Procedures	
• Begins when established at assigned altitude, airspeed, and power setting. • Ends with initial power reduction for descent or entering enroute holding.	• Updates/validates planned time and fuel computations as required to safely and efficiently accomplish the mission. • Effectively uses FSS, PMSV, and ATIS as required. • Maintains course centerline between all NAVAIDs and fixes with minor deviations (if IFR). • Executes point-to-point within ±2 NM.
14. Emergency Descent	
• Begins with initial power reduction. • Ends when straight and level, and recovery is complete.	• Performs procedure IAW NATOPS and FTI. • Flies maneuver at maximum rate of descent for configuration. • Initiates and completes recovery IAW FTI at prescribed altitudes.

BEHAVIOR STATEMENT	STANDARDS
15. Ditching	
• Begins when the decision to ditch is made. • Ends when the aircraft arrives at simulated impact.	• Executes maneuver IAW NATOPS and FTI. • Performs simulated impact at wings-level within ±20 degrees of ditch heading and +5/-0 knots. • Maintains rate of descent at 100 feet per minute or less (SSE or dual engine) ***or*** less than 500 feet per minute (power off).
16. Basic Instrument Maneuvers	
• Begins with initial pitch and power setting. • Ends when aircraft is stabilized in straight-and-level flight or in position for the next maneuver.	• Accomplishes all maneuvers IAW FTI. • Maintains Basic Aircraft Control parameters. • Maintains VSI within ±200 FPM of established parameters, if applicable.
17. In-Flight Planning/Clearance Compliance	
• Has general understanding of mission flow and area orientation, both vertically and horizontally, recognizing and avoiding potential hazards.	• Demonstrates effective time management. • Accomplishes mission maneuver items. • Complies with ATC clearance. • Remains within assigned airspace.

BEHAVIOR STATEMENT	STANDARDS
18. Cockpit Procedures	
• Prioritizes and manages crew tasks during mission profile; ensures complete checklist discipline and the following of all standard operating procedures.	• Correctly prioritizes multiple tasks; uses all available resources to manage workload. • Accomplishes all required normal and emergency checklists for each phase of flight; completes checklists in a timely manner with all items addressed. • Completes all ground checklists and is prepared for takeoff in a timely manner.
19. Radio Communications	
• Performs verbal communications during mission profile (normally PM).	• Uses precise, properly formatted radio calls with standard terminology. • Acknowledges all communications. • Understands and prioritizes transmissions in a multiple communications environment. • Asks for and provides clarification when necessary. • Asks questions when uncertain.
20. Enroute Descent	
• Begins with initial power reduction at cruise. • Ends when crossing the holding fix, IAF, or established on radar vectors cleared for approach.	• Complies with ATC/STAR/flight plan clearance. • Arrives at assigned/briefed altitude with sufficient time to slow and configure (if required) prior to the terminal fix.
21. Holding	
• Begins when crossing the holding fix and ends when departing the holding pattern for a subsequent fix or the approach.	• Computes proper entry turn. • Estimates wind direction and applies appropriate corrections. • Establishes and maintains aircraft with holding airspace.

BEHAVIOR STATEMENT	STANDARDS
22. High Altitude Approach (Penetration)	
• Begins when crossing the high IAF and ends at the FAF.	• Complies with all altitude restrictions. • Maintains airspeed IAW FLIP, NATOPS, and FTI.
23. Overhead/Break Entry	
• Begins when commencing the break. • Ends when arriving wings-level on the downwind leg at pattern altitude.	• Complies with FTI procedures. • Maintains altitude ±50 feet of FTI requirements.
24. Course Rules	
• Begins from VFR takeoff. • Ends when commencing the break, established on straight-in final, or wings-level on downwind.	• Accomplishes IAW NATOPS, FTI, and Course Rules, as appropriate.
25. Precision Approach	
• Begins when cleared for the approach on radar vectors or when intercepting glidepath on a published approach procedure. • Ends at transition to landing or applying power to execute a missed approach/waveoff.	• ILS approach: Maintains ±1 dot width of localizer and glideslope. • PAR approach: Does not exceed "well above/below glidepath" or "well left/right of course" and complies with the controller's instructions in a timely manner. • Maintains +5/-0 knots of approach airspeed. • Maintains arcs ±1 NM.

BEHAVIOR STATEMENT	STANDARDS
26. Non-Precision Procedure Turn/Arc	
• Begins on crossing IAF on a published approach procedure. • Ends when crossing FAF on a published approach procedure.	• Executes course reversal IAW NATOPS, FTI, and FAR/AIM, as appropriate. • Adjusts outbound leg to stay inside "remain within distance." • Maintains +10/-0 knots of approach airspeed. • Maintains arcs ±1 NM.
27. Non-Precision Approach	
• Begins when cleared for the approach on radar vectors or when crossing the FAF on a published approach procedure. • Ends at transition to landing or applying power to execute a missed approach/waveoff.	• FAF to MAP: (a) Begins timing within ±5 seconds if appropriate, (b) +10/-0 knots of approach airspeed, (c) Course ±1 dot width. • Arrives at the MDA prior to MAP in a safe position to make a normal visual descent to land. • MDA +100/-0 feet. • NDB final approach: Maintains ±5° bearing. • ASR approach: Does not exceed "well left/right of course" and complies with the controller's instructions in a timely manner.
28. Circling Approach	
• Begins when initiating the circle and ends at landing phase or applying power to execute a missed approach/waveoff.	• Accomplishes circle IAW FTI and FAR/AIM. • Maintains circling altitude +100/-0 feet. • Maintains circling airspeed +10/-0 knots. • Arrives at threshold +10/-0 knots of V_{REF} speed.

BEHAVIOR STATEMENT	STANDARDS
29. Transition to Landing	
● Begins when departing the MDA or DH on a visual glidepath to the runway and ends at landing phase.	● Maintains a normal visual glidepath to the runway. ● Follows visual approach guidance as appropriate, i.e., VASI, PAPI, etc. ● Arrives at threshold +10/-0 knots of V_{REF} speed.
30. Missed Approach	
● Begins when advancing power and ends when aircraft is safely airborne, gear and flaps are retracted, appropriate airspeed is established, and missed approach/ climbout instructions are complied with or closed pullup/ crosswind turn is initiated.	● Accomplishes IAW FTI and NATOPS. ● Complies with FLIP missed approach procedures or climbout instructions, as appropriate. ● Establishes runway/assigned heading ±5°, if appropriate. ● Initiates when field not in sight and ► Non-precision ▪ Inside FAF and full scale CDI deflection. ▪ At specified MAP DME. ▪ At expiration of timing in the absence of DME. ► Precision, first of ▪ Decision height, ▪ Controller-directed, ► Or, not in position for safe landing.

BEHAVIOR STATEMENT	STANDARDS
31. Waveoff/SSE Waveoff	
• Begins when advancing power levers. • Ends when aircraft is safely airborne, gear and flaps are retracted, appropriate airspeed is established, and crosswind turn is initiated.	• Complies with NATOPS and FTI procedures. • Initiates waveoff when: ▶ Aircraft requires more than 30-degree AOB to avoid overshooting final. ▶ Landing clearance not received by short final. ▶ Directed. ▶ Unsafe gear indication after rolling onto final. ▶ Aircraft is not in a safe position to make a safe landing.
32. VFR Landing Pattern	
• Begins when commencing the break, initiating crosswind, wings-level on downwind leg, or established on straight-in final. • Ends at landing phase or when adding power for waveoff.	• Complies with NATOPS and FTI procedures. • Maintains +5/-0 knots of FTI established pattern airspeeds prior to threshold. • Dual engine, arrives at threshold +5/-0 knots of V_{REF} speed. • Altitude ±50 feet of FTI requirements throughout pattern.
33. SSE Landing Pattern	
• Begins when initiating crosswind traffic, wings-level on downwind leg at pattern altitude, or established on straight-in final. • Ends at landing phase or when adding power for waveoff.	• Complies with NATOPS and FTI procedures. • Maintains +5/-0 knots of FTI-established pattern airspeeds prior to threshold; arrives at threshold +10/-0 knots of V_{REF} speed. • Maintains ±50 feet of FTI requirements throughout pattern.

BEHAVIOR STATEMENT	STANDARDS
34. Landing	
• Begins when crossing the threshold or initiating the roundout, whichever occurs first. • Ends when slowed to a safe taxi speed or when advancing power for touch-and-go takeoff.	• Dual engine, arrives at threshold +5/-0 knots of V_{REF} speed. • SSE, arrives at threshold +10/0 knots of V_{REF} speed. • Touches down in the prescribed landing zone. • Lands and maintains within ±10 feet of runway centerline. • Touches down <300 feet/min. • Applies proper crosswind correction.
35. Touch and Go	
• Begins when advancing power after landing. • Ends when aircraft is safely airborne, gear and flaps are retracted (if appropriate), and appropriate airspeed is established.	• Accomplishes IAW NATOPS and FTI. • Maintains runway centerline ±10 feet.
36. SSE Full Stop	
• Begins at touchdown on the runway and ends when the aircraft has come to a slow taxi speed on the runway.	• Performs maneuver IAW FTI. • Maintains centerline ±25 feet.

BEHAVIOR STATEMENT	STANDARDS
37. Pilot Flying/Crew Resource Management (CRM)	
• Decision Making. • Assertiveness. • Mission Analysis. • Communications (PM will normally make all external radio communications, graded item 19). • Leadership. • Adaptability/ Flexibility. • Situational Awareness (individually graded item). • As PF, embraces Threat and Error Management and callouts, acting as a complete team member. • Although PIC can act as PM or PF, PIC shall be graded under item 37.	• Gathers available data before arriving at final decision; clearly states decisions to the crew; and provides rationale for decisions. • Displays assertive behavior when necessary and accepts assertive behavior from other crewmembers. • Assesses risks and makes decisions; identifies probable contingencies and alternatives. • Facilitates effective, open, and clear internal communications; uses exact checklist and callout verbiage IAW FTI and NATOPS. • Recognizes and eliminates hazardous attitudes in self and other crewmembers; resolves conflict in a positive manner. • Provides positive leadership to the crew; encourages crew participation in the decision-making process. • Adapts to meet new situational demands. • Demonstrates the ability to maintain awareness of what is happening on the ground, in the air, and with other crewmembers; copes with any subsequent mission impact as a result of these happenings.

BEHAVIOR STATEMENT	STANDARDS
38. Pilot Monitoring/CRM	
• Decision Making. • Assertiveness. • Mission Analysis. • Communications (PM will normally make all external radio communications, graded item 19). • Leadership. • Adaptability/ Flexibility. • Situational Awareness (individually graded item). • As PM, embraces Threat and Error Management and callouts, acting as a complete team member. • Although PIC can act as PM or PF, PIC shall be graded under item 37.	• Gathers available data before arriving at final decision; clearly states decisions to the crew; and provides rationale for decisions. • Displays assertive behavior when necessary and accepts assertive behavior from other crewmembers. • Assesses risks and makes decisions; identifies probable contingencies and alternatives. • Facilitates effective, open, and clear internal communications; uses exact checklist and callout verbiage IAW FTI and NATOPS. • Recognizes and eliminates hazardous attitudes in self and other crewmembers; resolves conflict in a positive manner. • Provides positive leadership to the crew; encourages crew participation in the decision-making process. • Adapts to meet new situational demands. • Demonstrates the ability to maintain awareness of what is happening on the ground, in the air, and with other crewmembers; copes with any subsequent mission impact as a result of these happenings.
39. Radar Operation	
• Understands and applies system operation and limitations.	• Demonstrates ability to use radar for weather observation and avoidance.

BEHAVIOR STATEMENT	STANDARDS
40. Autopilot/Flight Director Operation	
• Understands and applies system operation and limitations.	• Correctly and appropriately uses autopilot in the horizontal and vertical modes to improve pilot task loading/clearing. • With autopilot engaged, maintains aircraft control within course training standards for the given phase of flight.
41. FMS Operation	
• Understands and applies system operation and limitations.	• Effectively and accurately programs and navigates using the FMS. • Able to store and retrieve flight plans. • Able to use system features to enhance situational awareness. • Accomplishes tasks in a timely manner.
42. ONAV Maneuvers	
• Begins after IFR departure when initiating descent to the VFR CHOP point. • Ends after climbing and obtaining IFR clearance for return to base or new destination.	• Accomplishes mission IAW ONAV FTI and ONAV Student Briefing Guide; arrives at brief with a properly completed DD-175 IFR/VFR composite flight plan IAW ONAV FTI and FLIP GP. • Adheres to standard descent practices below 1000 feet AWL as briefed including rate of descent not in excess of altitude and level-off at 500 feet AWL; initiates timely recovery for all deviations below minimum altitude. • Maintains good VFR scan. • Executes correct procedures for Quick and Eight-Point Rig, adhering to all the rules of engagement outlined in the FTI.

BEHAVIOR STATEMENT	STANDARDS
43. Search and Rescue Maneuvers (SAR)	
• Begins after IFR departure when initiating descent to the VFR CHOP point. • Ends after climbing and obtaining IFR clearance for return to base or new destination.	• Accomplishes mission IAW SAR FTI, SAR Student Briefing Guide, and National Search and Rescue Manual, Volumes I and II. • Arrives at brief with a properly completed DD-175 IFR/VFR composite flight plan IAW ONAV FTI and FLIP GP. • Demonstrates knowledge of SAR terminology, responsibilities of OSC, search planning variables, and specific search plans as described in above references. • Determines correct search plan for given SAR scenario; briefs and uses standard techniques for scanning, sighting, and identification, search pattern departure, and returning to a search pattern. • Executes search, survivor relocation, ADS and sea rescue kit delivery patterns IAW SAR FTI. • Adheres to FTI flight parameters and rules of engagement during SAR pattern execution.
44. Airdrop/LZ Arrival	
• Begins when lead initiates slowdown and ends after the escape maneuver when established at next segment parameters.	• Positively identifies the drop zone or LZ; makes timely and assertive radio and ICS advisory calls to execute a safe slowdown, airdrop or landing, and escape. • Aligns the aircraft properly over the DZ on the inbound course. • Arrives at objective ±1 minute of planned arrival time.

BEHAVIOR STATEMENT	STANDARDS
45. Tactical Formation Maneuvers	
• Begins with formation taxi and ends when the formation is split up for recovery or in the pattern.	• Accomplishes mission IAW mission brief and LL/TF FTI; demonstrates a working knowledge of procedures in FTI. • Maintains in-trail position, co-altitude with lead, out of prop wash, and distance ±100 feet of proper position. • Maneuvers to line abreast and fluid trail positions safely.
46. Maritime Formation Maneuvers	
• Begins with formation taxi and ends when the formation is split up for recovery or in the pattern.	• Accomplishes maneuvers IAW the mission brief and the FTI. • Demonstrates a working knowledge of formation procedures as established in the FTI. • Maintains wingman position stabilized with safe separation between aircraft. • Demonstrates wingman consideration while lead.
47. Low-Level Maneuvers	
• Begins when the aircraft is maneuvered to enter the low-level route and ends with aircraft level-off after departing the low-level route.	• Accomplishes mission IAW LL/TF FTI and Air Force academics. • Navigates primarily by prepared low-level chart; arrives at brief with a neat chart that incorporates proper CHUM updates. • Applies accepted techniques to correct course and timing deviations; directs aircraft to turnpoints, drop zone, and recovery field.

BEHAVIOR STATEMENT	STANDARDS
48. Clearing	
• Begins at engine start and ends with both engines shut down and parking brake set.	• Accomplishes flight deck and mission tasks while remaining visually and aurally alert to and avoiding other in-flight and ground obstacles. • Effectively uses accepted visual clearing techniques to avoid conflicts. • Effectively uses radios and other crewmembers to aid in clearing.
49. Tactical Formation Maneuvers	
• Begins when flight assumes combat cruise/combat spread formation. • Ends when the formation returns to parade/cruise position.	• Accomplishes mission IAW mission brief and LL/TF FTI; demonstrates a working knowledge of procedures in FTI. • Maneuvers to combat cruise and combat spread positions safely. • Demonstrates ability to make proper considerations when transitioning to LZ.
50. Formation Navigation	
• Begins when the aircraft is maneuvered to enter the low-level route. • Ends with aircraft level-off after departing the low-level route.	• Accomplishes mission IAW LL/TF FTI and Tactical Formation Ground School. • Navigates primarily by prepared low-level chart; arrives at brief with a neat chart that incorporates proper CHUM updates. • Applies accepted techniques to correct course and timing deviations; directs aircraft to turnpoints, drop zone, and recovery field.

BEHAVIOR STATEMENT	STANDARDS
51. Fuel Management	
• Maintains fuel awareness throughout flight. • Keeps track of fuel for all formation members.	• Monitors fuel status on deck at intended point of landing. • Adjusts course or destination in order to satisfy applicable directives. • As lead – keeps track of Dash-2's fuel state with appropriate fuel checks performed IAW FTI and local standards. • As Dash-2 – ensures lead is aware of fuel state through compliance with fuel checks performed IAW FTI and local standards.
52. USN Aerial Refueling Maneuvers (AR)	
• Begins when the aircraft is maneuvered to the Aerial Refueling Initial Point or the Aerial Refueling Control Point and ends after departing the aerial refueling track.	• Accomplishes maneuvers IAW mission brief and the FTI. • Demonstrates a working knowledge of aerial refueling procedures as established in the FTI. • Maintains a stabilized rendezvous with safe separation between aircraft. • Demonstrates stabilized precontact position while receiver. • Maintains precise control of the aircraft while demonstrating aerial refueling limits.