

**NAVAL AIR TRAINING COMMAND**



**NAS CORPUS CHRISTI, TEXAS  
CIN Q-2D-0285**

**CNATRAINST 1542.157A**

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## **CHIEF OF NAVAL AIR TRAINING**



# **INTERMEDIATE JET MULTI-SERVICE NFO/CSO TRAINING SYSTEM CURRICULUM 2008**





DEPARTMENT OF THE NAVY

CHIEF OF NAVAL AIR TRAINING  
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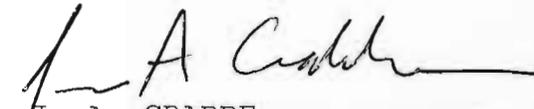
CNATRAININST 1542.157A  
N712

23 DEC 2008

CNATRA INSTRUCTION 1542.157A

Subj: INTERMEDIATE JET MULTI-SERVICE NAVAL FLIGHT OFFICER  
(NFO)/AIR FORCE COMBAT SYSTEMS OFFICER (AF CSO) TRAINING  
SYSTEM CURRICULUM

1. Purpose. To issue the curriculum for training student Naval Flight Officers and USAF Combat System Officers in the Intermediate Jet stage of undergraduate NFO/CSO Training.
2. Cancellation. CNATRAININST 1542.157.
3. Action. This instruction is effective on receipt. No changes will be made without written authorization by the Chief of Naval Air Training (CNATRA).
4. Forms. The Aviation Training Forms required by this directive are computer generated in the Training Integration Management System (TIMS) at TRAWING SIX. This system has been assigned a system form number of CNATRA 1542/2022. CNATRA point of contact is the current Pipeline Training Officer, CNATRA (N712), DSN 861-3903. An update of these forms shall be accomplished no later than the issuance of this curriculum.

  
J. A. CRABBE  
Chief of Staff

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COURSE DATA

1. Course Title. Intermediate Jet Multi-Service NFO/CSO Training System Curriculum.
2. Course Identification Number (CIN). Q-2D-0285.
3. Location. NAS Pensacola.
4. Course Status. Active.
5. Course Mission. To qualify graduates of this course for follow-on advanced flight training and prepare them for their future responsibilities as military officers. This requires:
  - a. Flight training to teach the principles and techniques used in operating high performance aircraft.
  - b. Ground training to supplement and reinforce flight training.
6. Prerequisite Training. Successful completion of Primary and Intermediate (T-6A) Multi-Service SNFO/SCSO Training, Q-2D-0185 and Q-2D-0285.
7. Security Clearance Requirements. None.
8. Follow-on Training. Advanced NFO/AF CSO training or VAW-120.
9. Course Length. Overall time to train is calculated in accordance with CNATRAINST 1550.6E. Training days account for factors including weather, personnel and equipment availability, briefing and preparation time, and historical delays. Calendar Weeks further account for weekends, holidays, safety stand-downs, and other expected nonworking days.

	<u>Training Days</u>	<u>Calendar Weeks</u>
T-1A/T-39 Intermediate*:	19.47	4.32

\* The Intermediate Phase consists of 17 training days in CNATRAINST 1542.155B, and 19.47 training days in CNATRAINST 1542.157A.

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 SIX (COMTRAWING SIX).
13. Quota Management Authority. Chief of Naval Air Training.
14. Quota Control. Chief of Naval Operations.
15. Course Training Subjects
  - a. Ground Training

<b>T-1A/T-39 ADMINISTRATION</b>		
<b>Stage</b>	<b>Symbol</b>	<b>Hours</b>
Introduction to T-1A/T-39	G0101	1.5
Administration/I-Grad/Checkout	G0102	0.5
<b>Totals</b>		<b>2.0</b>

<b>T-1A GROUND TRAINING</b>		
<b>Stage</b>	<b>Symbol</b>	<b>Hours</b>
T-1A Crew Resource Management	G0201	1.5
T-1A Oxygen System and Egress	G1601	1.9
T-1A Engines	G1602	1.9
T-1A Fuel System	G1603	1.9
T-1A Hydraulic System	G1604	1.9
T-1A Electrical System	G1605	1.9
T-1A Environmental System	G1606	1.9
T-1A Anti-Ice System	G1607	1.9
T-1A Flight Controls	G1608	1.9
T-1A Avionics	G1609	1.9
T-1A Systems Test Review	G1610	1.9
T-1A Emergency Procedures Exam	G1611	0.5
T-1A Systems Exam	G1612	1.5
Low Altitude Awareness Training	G1038	2.0
<b>Totals</b>		<b>24.5</b>

<b>T-39 GROUND TRAINING</b>		
<b>Stage</b>	<b>Symbol</b>	<b>Hours</b>
T-39 Crew Resource Management	G0301	1.5
T-39 Engines	G1701	1.0
T-39 Engines Lecture	G1702	1.0
T-39 Fuel System	G1703	1.0
T-39 Fuel System Lecture	G1704	1.0
T-39 Electrical System	G1705	1.0
T-39 Electrical System Lecture	G1706	1.0
T-39 Hydraulics System	G1707	1.0
T-39 Hydraulics System Lecture	G1708	1.0
T-39 Flight Controls	G1709	1.0
T-39 Flight Controls Lecture	G1710	1.0
T-39 Anti-Ice System	G1711	1.0
T-39 Anti-Ice System Lecture	G1712	1.0
T-39 Environmental System	G1713	1.0
T-39 Environmental System Lecture	G1714	1.0
T-39 Avionics	G1715	1.0
T-39 Avionics Lecture	G1716	1.0
T-39 Emergency Procedures	G1717	1.0
T-39 Emergency Procedures Lecture	G1718	1.0
T-39 Systems Test Review	G1719	1.0
T-39 Emergency Procedures Exam	G1720	0.5
T-39 Systems Exam	G1721	1.5
Low Altitude Awareness Training	G1038	2.0
<b>Totals</b>		<b>24.5</b>

b. Flight Support

<b>T-1A FLIGHT SUPPORT</b>		
<b>Stage</b>	<b>Symbol</b>	<b>Hours</b>
T-1A Flight Preparation - Checklists	I1001	4.0
T-1A Flight Preparation - Procedures	I1002	4.0
T-1A Flight Preparation - Test Review	I1003	1.0
T-1A Flight Preparation Exam	I1004	1.5
T-1A Visual Navigation Flight Procedures (VNAV 6)	N1001	2.4
T-1A Visual Navigation Flight Procedures (VNAV 7)	N1002	2.3
T-1A Visual Navigation Flight Procedures (VNAV 8)	N1003	1.0
T-1A Visual Navigation Exam	N1004	1.5
T-1A FAM-0	I0101	2.0
<b>Totals</b>		<b>19.7</b>

<b>T-39 FLIGHT SUPPORT</b>		
<b>Stage</b>	<b>Symbol</b>	<b>Hours</b>
T-39 Flight Preparation - Checklists	I1101	4.0
T-39 Flight Preparation - Procedures	I1102	4.0
T-39 Flight Preparation - Test Review	I1103	1.0
T-39 Flight Preparation Exam	I1104	1.5
T-39 Visual Navigation Flight Procedures (VNAV 6)	N1101	2.4
T-39 Visual Navigation Flight Procedures (VNAV 7)	N1102	2.3
T-39 Visual Navigation Flight Procedures (VNAV 8)	N1103	1.0
T-39 Visual Navigation Exam	N1104	1.5
T-39 FAM-0	I0201	2.0
<b>Totals</b>		<b>19.7</b>

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

<b>INTERMEDIATE FLIGHT TRAINING</b>						
<b>Flight/Events</b>	<b>CPT</b>		<b>SIM</b>		<b>T-1A/T-39 Dual</b>	
	<b>Flts</b>	<b>Hrs</b>	<b>Flts</b>	<b>Hrs</b>	<b>Flts</b>	<b>Hrs</b>
Instrument Navigation					4	8.0
Visual Navigation					3	4.5
Jet Navigation Check Ride					1	2.0
<b>Totals</b>					<b>8</b>	<b>14.5</b>

16. Training Time Analysis

ADDITIONAL TRAINING TIME PER CURRICULUM HOUR/EVENT				
Training Area	Brief/Preflight/ Taxi	Prep Study	Taxi/ Debrief	Total
Flight (T-39)	1.25		1.00	2.25
Flight (T-1A)	1.75		1.50	3.25
Academic and Flight Support		0.50		0.50

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

18. Obligated Service. Refer to MILPERSMAN Article 661036 for Naval personnel or to Air Force Instruction (AFI) 36-2107 for USAF personnel.

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

20. Preceding Curriculum Data. Replaces CNATRAINST 1542.157.

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

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ABBREVIATIONS

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

- a. ACAD - Academic
- b. ATF - Aviation Training Form
- c. ATIS - Automated Terminal Information Service
- d. ATJ - Aviation Training Jacket
- e. ATS - Aviation Training Summary  
also Approach Turn Stall
- f. CAI - Computer-Assisted Instruction
- g. CA - Class Advisor
- h. CO - Commanding Officer
- i. CRM - Crew Resource Management
- j. CTS - Course Training Standard
- k. DH - Decision Height
- l. DME - Distance Measuring Equipment
- m. EOB - End of Block
- n. ETA - Estimated Time of Arrival
- o. EP - Emergency Procedure
- p. FAA - Federal Aviation Administration
- q. FLIP - Flight Information Publication
- r. FPC - Final Progress Check
- s. FSS - Flight Service Station
- t. FTI - Flight Training Instruction
- u. GCA - Ground-Controlled Approach
- v. H/X - Hours per X (Event)
- w. IAW - In Accordance With

x.	ICS	-	Intercommunication System
y.	ILS	-	Instrument Landing System
z.	IP	-	Instructor Pilot
aa.	IPC	-	Initial Progress Check
ab.	IMS	-	International Military Student
ac.	IMSO	-	International Military Student Officer
ad.	MAP	-	Missed Approach Point
ae.	MC	-	Magnetic Course
af.	MCF	-	Mission Completion Fuel
ag.	MIF	-	Maneuver Item File
ah.	MIL	-	Mediated Interactive Lecture
ai.	MNTS	-	Multi-Service Navigator Training System
aj.	NAS	-	Naval Air Station
ak.	NFO	-	Naval Flight Officer
al.	NFS	-	Naval Flight Student
am.	NG	-	No Grade
an.	NM	-	Nautical Mile
ao.	NOTAMs	-	Notices to Airmen
ap.	NPA	-	Pensacola NAS, FL
aq.	NSS	-	Navy Standard Score
ar.	PAS	-	Phase Aggregate Score
as.	PCL	-	Pocket Checklist
at.	RRU	-	Ready Room Unsatisfactory
au.	SMS	-	Student Monitoring Status
av.	SSR	-	Special Syllabus Requirement
aw.	SOP	-	Standard Operating Procedure

- ax. TRB - Training Review Board
- ay. UHF - Ultra High Frequency
- az. VFR - Visual Flight Rules
- ba. VNAV - Visual Navigation
- bb. VHF - Visual High Frequency
- bc. VOR - Very High Frequency Omnidirectional Range

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GLOSSARY

1. Advancing X. Completed event within the normal syllabus flow. Excludes events with last characters in the range 84-89.
2. Aviation Training Form. A grade sheet documenting student performance for all categories of training regardless of media, phase, or stage.
3. Aviation Training Jacket. The ATJ is the student's training record. It contains ATFs, calendar card, grade reports, and all other associated training information. It is filed in student control and follows the student through all phases of training.
4. Aviation Training Summary. A tabular sheet listing the MIF and maneuver grades within a training stage.
5. Block of Training. A sequential series of lessons within a training stage sharing an identical MIF. The third character in the lesson designator identifies a block.
6. Check Ride (SXX90). A flight check in any stage of training.
7. Class Advisor. An instructor assigned by the Flight Leader to provide counseling and guidance to a specific class throughout the applicable syllabus.
8. Contact. The stage of training that combines day and night flight familiarization, aerobatic maneuvers, and out-of-control flight procedures.
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. A description of required behaviors and standards of performance for a specific maneuver. These standards are in Chapter VIII.
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) TRB Summary Form generated by the TRB that summarizes a specific student's progress in a given syllabus and provides detailed information on the application of MNTS training for that student. Deliverables indicate whether the quality and continuity of training provided was IAW CNATRAINST 1542.157A, indicates the degree of influence by "human factors" on the student performance, and makes a recommendation on elimination/retention based on those items.
14. End of Block. Last event in block. In order to progress past EOB, the student must meet or exceed MIF on all critical items and all optional items attempted in the block.
15. Emergency Procedure. Any degradation of aircraft systems or flight conditions requiring aircrew action or intervention.
16. Extra Training (SXX87). Additional student training flights ordered by the Operations Officer, or higher, in order to make up for Squadron/Instructor deficiencies.
17. Final Progress Check (SXX89). A special check normally given by the Commanding Officer (CO) or Executive Officer (XO). The CO may delegate FPC duty to a qualified O-4 or above, in the event that neither the CO nor XO are qualified or available to instruct in the required stage. A satisfactory FPC returns the student to normal syllabus flow. An unsatisfactory FPC results in a TRB. An FPC can be the result of an unsatisfactory IPC in the ready room or flight environment or can be command-directed.
18. Flight Training Instruction. A CNATRA-approved manual describing flight procedures and techniques for each training stage.
19. Hours per X (H/X). The average length for each event in a block, rounded to the nearest tenth of an hour.

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

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

Char	Meaning	Remarks
1 <sup>st</sup>	Stage	G—Ground C—Contact I—Instrument N—Navigation F—Formation
2 <sup>nd</sup>	Media	0—Ground Event 1—Academics 2—Simulator (Primary) 3—Simulator (Intermediate) 4—Aircraft (Primary) 5—Aircraft (Intermediate) 6—Simulator (IUT) 7—Aircraft (IUT) 8—Simulator (NATOPS) 9—Aircraft (NATOPS)
3 <sup>rd</sup>	Block	Sequential, indicating block within stage.
4 <sup>th</sup> & 5 <sup>th</sup>	Event/ Check Identifier	Sequential, indicating event within block, or other event types as shown below: 84—Adaptation Flight 85—Practice Sim 86—Warmup 87—Extra Training 88—Initial Progress Check 89—Final Progress Check 90—Check Ride

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

23. Master Syllabus. Chapters I-VII list all training syllabus activities, prerequisites, and desired training flow for MNTS.

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

- a. Pass—Return to training.
- b. Fail—Proceed with the elimination process/eliminate.

25. Phase of Training. A major division in the course of training, such as the Primary Phase.

26. Pink ATF. An ATF that is pink in color, but otherwise identical to the standard ATF. The pink ATF is used to denote an unsatisfactory event generating a progress check.
27. Progress Check Instructor. An instructor authorized to administer initial or final progress checks.
28. Ready Room Unsatisfactory. An unsatisfactory grade given for inadequate knowledge of flight procedures, systems, discuss items, emergency procedures, or deficient preflight planning.
29. Special Syllabus Requirement. A one-time, ungraded demonstration item.
30. Stage of Training. All training of a particular type (Ground, Contact, Instrument, Navigation, Formation) within a phase. The first letter in the lesson designator identifies the stage of each lesson (Example: F5001 is in the formation stage).
31. Standard Operating Procedure. A training wing or squadron directive describing standard operating procedures for local aircraft.
32. Student Monitoring Status. Squadron-initiated status to address substandard student performance.
33. Training Media. The media for this syllabus include aircraft, 2B47 simulator, ground training, and CAI. The second character in the lesson identifier designates the training media.
34. Training Review Board. A fact-finding board appointed to conduct an administrative review of circumstances and procedures relative to an FPC recommendation for a student's elimination.
35. Warmup Event (SXX86). An additional event given to allow a student to regain a level of proficiency previously demonstrated which has diminished due to an extended break in training.
36. Yellow ATF. An ATF that is yellow in color, but otherwise identical to the standard ATF. The yellow ATF is used to denote an unsatisfactory training event that does not generate an Initial or Final progress check.

Chapter I

General Instructions

1. Syllabus Management

- a. Distribution. Participating squadron personnel.
- b. Interpretation. The syllabus is directive. Should circumstances create situations not covered within the scope of this syllabus, or a specific course of action appears to conflict with other directives, consult CNATRA (N712).
- c. Deviations. Document all deviations on the event's ATF.
- d. Changes. Recommended changes shall be submitted in accordance with (IAW) CNATRAINST 1550.6E.
- e. Execution. All students execute Chapters II through V.
- f. Syllabus Description. This syllabus consists of two stages of flight training referred to as the T-39 or T-1A Instrument and Navigation Stages. Each stage is flown in the T-39 or T-1A and is divided into blocks. The training blocks consist of a specified number of flights. Maneuver item files identify the minimum acceptable level of performance in relation to the CTS that must be achieved at the completion of each training block.
- g. Grade Calculation. The calculation for the PAS is as follows:

From a population of previous students

$$PAS = 50 + 8.1(S-M1)/S1 + 0.9(M2-TGI)/S2 + (ACAD-M3)/S3$$

S - Student's Score: Sum of the student's grades for gradable maneuvers in the aircraft and the simulator divided by the sum of the MIF for those maneuvers (Grade/MIF).

M1 - Average Score

M2 - Average of Total Graded Items (TGI)

M3 - Average Academic Grade

S1 - Standard Deviation Score

S2 - Standard Deviation of TGI

S3 - Standard Deviation of Academic Grades  
TGI - Total Graded items. Sum of number of graded maneuvers  
ACAD - Student's Academic Score

$$\text{PAS-NSS} = 50 + 10(\text{PAS-M4})/S4$$

M4 - Average PAS  
S4 - Standard Deviation of PAS

Once the population has been determined for the given month, a student's PAS and PAS-NSS can be calculated at any time during the month by using the formulas, given the Student's Score, Academic Grade, and the number of graded items.

## 2. Training Management

a. Syllabus Progression. Fly syllabus events within each stage sequentially. Do not start a block without having all prerequisites completed. Students may be in different blocks simultaneously. Where applicable, students shall be prepared, and will be eligible, for both an Instrument Navigation (INAV) syllabus event in the Intermediate Jet stage and a Visual Navigation (VNAV) syllabus event after the first instrument event in Intermediate Jet stage. Students must complete all events. System training management is designed to facilitate two graded events (flight, simulator, or exam) per student per day (non-SMS students).

b. Maneuver Continuity. Students must accomplish previously introduced maneuvers frequently enough to ensure maintaining required proficiency.

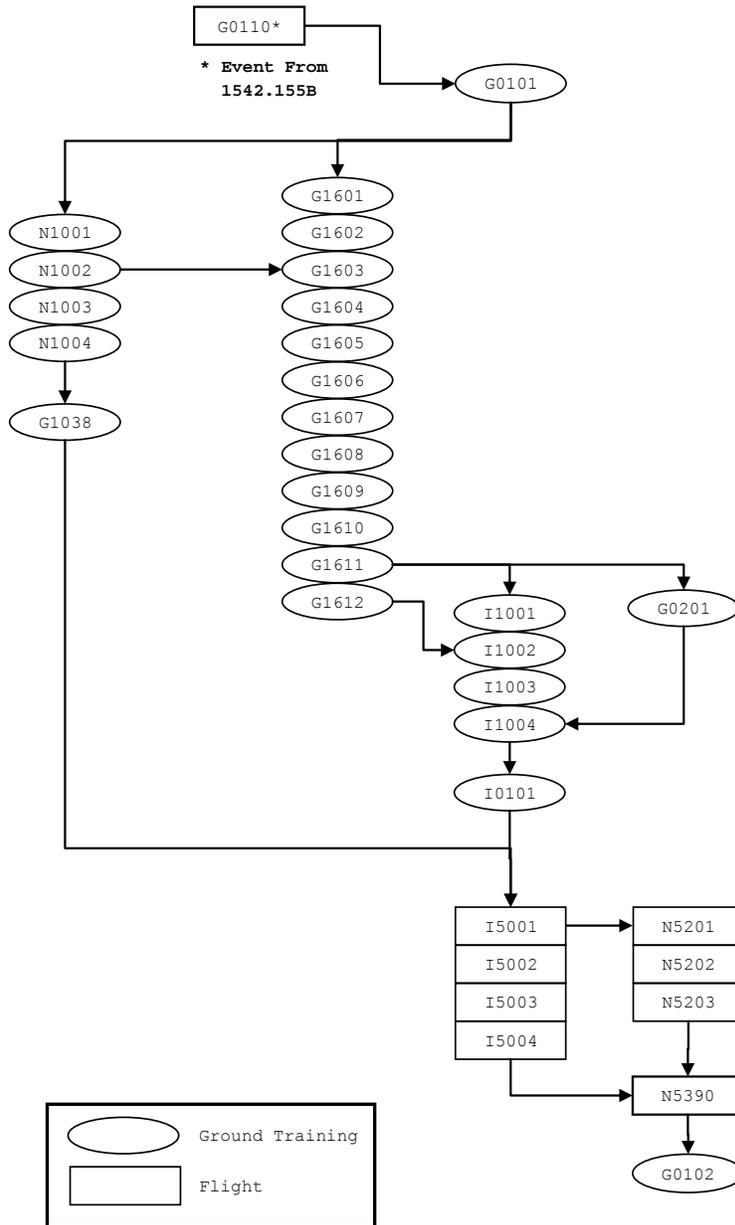
c. H/X. Instructors shall plan and execute missions to meet H/X as closely as practical. If actual event length varies from H/X by more than 0.3 hrs, annotate reason(s) in ATF's general comments section.

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

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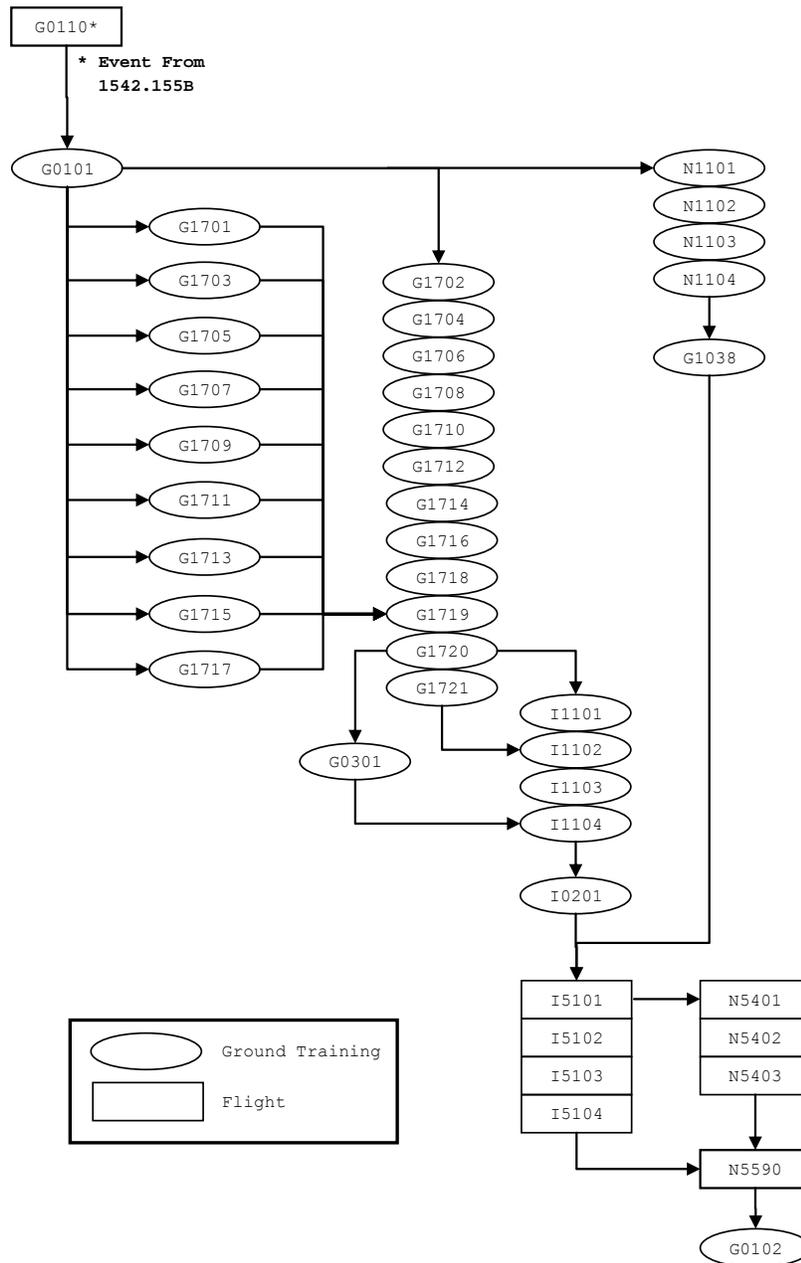
e. ATJ Reviews. Class Advisors (CAs), Flight Leaders, or Assistant Flight Leaders will conduct jacket reviews at least monthly. SMS students require weekly ATJ reviews.

**COURSE FLOW**



**INTERMEDIATE JET SYLLABUS (T-1A)**

**COURSE FLOW**



**INTERMEDIATE JET SYLLABUS (T-39)**

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

a. Flight

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

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

(3) An unsatisfactory check ride (SXX90) or two consecutive or three in-block unsatisfactory syllabus events result in an IPC. Document the failed check ride or second consecutive or third in-block unsatisfactory event on a pink ATF for that syllabus event.

(4) FPCs shall be triggered if NFS fails an IPC, if NFS has already been awarded an IPC in phase and NFS has a second consecutive or third in-block UNSAT in phase, if NFS fails to meet SMS goals, or at the CO's discretion. Document the failed progress check on a pink ATF generating the progress check.

(5) Failing an FPC results in a TRB.

b. Ready Room Unsatisfactory

(1) An RRU on any syllabus event will result in an IPC. Document the RRU on a pink ATF for that event. The event will be marked as incomplete with an Unable (U/2) grade for the appropriate item, i.e., general knowledge, emergency procedures, mission planning, etc. On remediation of unsatisfactory performance, the event will be flown to completion, and the unsatisfactory grade, i.e., general knowledge, emergency procedures, mission planning, etc., will be incorporated into the overall grading solution.

(2) A second or subsequent RRU or failed IPC or two consecutive unsatisfactory flight events will result in an FPC. Document the failed IPC on a pink version of the ATF generating the Progress Check.

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

c. Academic. The second test failure (in phase) triggers an IPC. A third test failure (in phase) triggers an FPC.

d. Remediation

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

(2) Unsatisfactory performance in one area of training may be cleared by dual instruction in another area of training directly applicable to the deficient area. (Example: A navigation event graded unsatisfactory due to emergency procedures may be cleared by a dual instrument syllabus event.)

#### 4. Training Review Board

a. Scope. Consider the circumstances relevant to the student's training, for example:

(1) Quality of training provided in accordance with applicable FTI.

(2) Continuity of training provided.

(3) Outside influences/extenuating circumstances.

(4) The TRB **shall not** make elimination/retention recommendations based on perceived student potential or aspects unrelated to the administrative application of training IAW this directive.

b. Composition

(1) Voting Members. The board consists of three voting members, one of which is the Senior Member. The TRAWING Commodore designates the Senior Member in writing.

(2) Other Members/Observers. At least one member will be from the student's parent service. For IMSs, where possible, include the country liaison officer and the TRAWING IMSO as observers.

(3) Academic Failures. TRBs convened due to academic failures may include one qualified civilian instructor as voting member.

(4) Exclusion. The following conditions exclude an instructor from acting as a voting member on a student's TRB:

(a) The student's on-wing.

(b) Any instructor who has sat on a previous TRB for the student.

(c) Any instructor who has awarded an unsatisfactory to the student in the relevant training stage.

(d) The IMSO, in the case of an international student.

c. Deliverables

(1) A background paper assessing the student's training quality and highlighting any irregularities.

(2) Use CNATRA 1542/1827 (Rev. 4-04), Training Review Board Summary Form.

5. Instructor Continuity. There are no continuity requirements unless specified by the flight leader for SMS students.

6. Break in Training Warmup Events (SXX86). Nonsyllabus warmup events compensate for breaks in training. Eligibility is based on the number of days since the last flight or simulator in the same stage. All warmups shall be coded as an SXX86, e.g., C4186. Warmup grades do not satisfy block or MIF requirements and shall not be included in the cumulative totals.

a. Warmups Between Stages. Warmup events shall not be given prior to the first flight in stage unless 30 days have elapsed since any syllabus flight or simulator event.

b. Warmup Event Criteria. Warmup events are based on the length of break and the student's performance. If the student is eligible for an optional warmup and his/her performance meets MIF, the event shall count as the next syllabus event; however, if a student's overall event grade is marginal or unsatisfactory, the flight is a warmup.

Warmup event example: If the student completes C4001 on Monday, Julian date 0001, and does not fly C4002 until Monday, Julian date 0008, the break is 7 days, and the C4002 event is an optional warmup event.

CRITERIA FOR AWARDING WARMUP EVENTS		
Break* (Days)	Warmup Events	Remarks
1-6	None	
7-13	1 Optional	<ul style="list-style-type: none"> <li>● Based on performance.</li> <li>● Required if overall grade is Marginal or Unsatisfactory.</li> <li>● Prohibited if: <ul style="list-style-type: none"> <li>▶ Performance meets MIF.</li> <li>▶ First event in stage.</li> </ul> </li> </ul>
14	1 Mandatory ----- 1 Optional	<p>-----</p> <ul style="list-style-type: none"> <li>● Optional warmup based on performance.</li> <li>● Required if overall grade is Marginal or Unsatisfactory.</li> </ul>

\*Break = Julian Date - Julian Date last flown

c. Additional Warmup Events. The Operations Officer may direct additional warmup aircraft or simulator/CPT events for extended breaks in training.

7. Additional Flights/Simulators

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

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

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

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

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

3. IPC/FPC 87 events **shall not** be awarded to remediate unsatisfactory student performance unrelated to unit/instructional training inadequacies (poor event/maneuver continuity).

4. Document IPC/FPC 87 events using CNATRA-GEN 1542/16, Supplementary Jacket Form.

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

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

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

## 8. Student Monitoring Status

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

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

c. SMS is intended as a short-term program. SMS requires specific goals to include, but not limited to, training tailored to correct deficiencies as determined by the Flight Leader and Operations Officer or to address personal issues as determined by the Class Advisor. The goals and the required period in SMS must be annotated in a supplemental ATF in the student's ATJ. Document placement and removal from SMS on a supplemental ATF.

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

## 9. Ground Training and Briefing Requirements

### a. Mission Preparation, Briefings, and Debriefings

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

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

(a) Thorough knowledge of:

1. The flight's discuss items, as listed in Chapters II, IV, and V.

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

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

(c) The latest ATS for the stage.

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

(a) Specific objectives.

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

(c) Planned profile and contingencies.

(4) Debriefing

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

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

(c) The instructor shall provide the student with a new ATS, and may provide a copy of the event's ATF.

b. Emergency Procedures Briefing and Training

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

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

10. Mission Grading Procedures and Evaluation Policies

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

b. Grading Procedures (Aircraft and Training Devices)

(1) Absolute Maneuver Grading. Use the following grading scale to document the student's characteristic performance on maneuvers attempted during each event. This is

an absolute grading scale. Judge the student's proficiency only against the item's CTS. Maneuver grades shall be consistent with ATF comments.

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

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

2. To indicate accomplishing SSRs. Specify the completed SSRs in the ATF's SSR comments section.

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

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

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

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

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

(a) Pass

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

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

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

(c) Unsatisfactory. Student exhibits dangerous tendencies, or progress towards meeting EOB standards is insufficient. See **Awarding Overall Event Grades** below for specific rules defining unsatisfactory performance.

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

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

(b) Prior to EOB. Performance must meet or exceed previous block MIF.

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

(d) Regression Rules. Regression rules address uneven performance through training. Regression is defined as performance below the previous block MIF. Regression does not apply between media (simulators to aircraft) within stage.

1. The student is allowed up to two maneuver grades of F/3 where a G/4 was required on previous block MIF.

2. The Instructor shall award an overall unsatisfactory if:

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

b. If performance on the same maneuver for two consecutive events resulted in an F/3 where a G/4 was required on previous block MIF, or

c. There is regression on three or more items during one event that resulted in an F/3 where a G/4 was required on previous block MIF.

(4) Maneuver Requirements. For each block:

(a) Mandatory Items. Items with a number and a plus (+) are mandatory and the student must meet the required proficiency by EOB.

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

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

1. Unnumbered items.

2. Items not in the stage.

3. EXCEPTIONS:

a. Weather-driven instrument approaches.

b. Prebriefed maneuvers for instructor proficiency.

(5) Incomplete Events. In general, Instructors should consider an event complete if able to accomplish either all high or all low work. This is particularly true when weather precludes one or the other, and the Instructor is able to emphasize training where weather permits. Subsequent events in the block, when available, can reverse this emphasis, hence achieving overall training balance. If a student has had ample opportunity to learn a task and subsequently flies a short mission, 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. Sufficient events remain in the block to redress the imbalance, and

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

4. Otherwise, assess the event incomplete.

(b) Completion Events

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

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

c. Policies for Evaluation Flights and Ground Evaluations

(1) Authorized Evaluators. The squadron commander will designate check instructors 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 event grade of Unsatisfactory.

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

4. The student should be able to demonstrate required levels of proficiency without instructor assistance. However, instruction is allowed on check rides and students may reaccomplish maneuvers at the check instructor's discretion.

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

1. Any critical (+) item was not flown, or
2. The check instructor was unable to sample sufficient examples of a given maneuver to assess the student's overall performance.

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

3. EXCEPTIONS. The check is complete and the overall grade is Unsatisfactory if:

- a. Any critical item is below MIF, or
- b. More than two noncritical items were graded F/3 where G/4 is required, or
- c. Any maneuver is U/2.

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

(3) Progress Check Procedures

(a) The Progress Check Instructor shall consider the student's proficiency, judgment, air sense, and overall ability to perform the maneuvers safely and confidently. The student must also demonstrate the potential to successfully complete MNTS *and advanced training*. All progress checks must meet MIF for the most recently completed block of training. Progress checks shall be full mission profiles emphasizing the student's weak areas and a representative cross section of area and pattern maneuvers. All critical items do not need to be accomplished. Document failed progress checks on a pink-colored version of the respective ATF for the failed event generating the progress check. Flight and Ready Room Unsatisfactory events proceed as follows:

1. The student's first flight progress check is an IPC (SXX88) event. Any subsequent flight progress check is an FPC (SXX89).

2. Similarly, the first RRU generates an IPC. A subsequent RRU generates an FPC.

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

1. Criteria for IPC are:

a. Failed check ride.

b. Two consecutive or three in-block overall event grades of Unsatisfactory, not including ET or warmup events.

c. Following an RRU.

d. Failing two academic tests in phase.

e. Receiving an officer-like qualities (OLQ) unsatisfactory.

2. The Operations Officer or above may direct an IPC when the student's potential to complete MNTS is in doubt, or his/her officer-like qualities are inadequate.

3. IPC outcomes are:

a. Passing returns the student to normal syllabus flow.

b. Failing results in an FPC.

4. IPC Instructors. The Operations Officer or his representative, usually a designated STAN Instructor, shall administer the IPC. The IPC shall not be administered by the instructor that generated the Unsatisfactory grade, resulting in the IPC, or by the student's personal advisor. A qualified IPC Instructor shall monitor an IPC conducted in a simulator. The squadron IPC Instructor is required to make a "return to training" or "continue the elimination process" recommendation to the squadron CO.

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

1. Criteria for an FPC are:

a. Following a failed IPC.

b. The conditions requiring an IPC exist and the student has already accomplished an IPC.

c. Following the third academic test failure in phase.

2. Commanding Officer-directed FPC when the student's potential to complete MNTS is in doubt, failure to meet specific goals of SMS, or officer-like qualities are inadequate.

3. FPC outcomes are:

a. Passing returns the student to normal syllabus flow.

b. Failing results in a TRB.

4. FPC Instructor. The CO, XO, or a CO-designated representative administers the FPC. It is the intent of CNATRA that, wherever possible, the CO or, in his absence,

the XO, shall conduct FPCs. In the event that neither the CO nor XO are qualified or available to instruct in the required stage, the CO may designate, in writing, a senior officer (O-4 or above) to conduct the FPC by direction. The FPC shall not be administered by the Instructor that generated the Unsatisfactory grade resulting in the FPC, or by the student's class advisor. The FPC Instructor is responsible for the elimination/retention decision.

d. Progress Check Counseling

(1) Prior to an IPC. The student's Flight Leader or the Operations Officer shall counsel the student on the progress check training review process and document counseling using CNATRA-GEN 1542/16, Supplementary Jacket Form.

(2) On Completion of an IPC. The IPC Instructor or Operations Officer shall counsel the student on the progress check training review process. When conducted by the IPC Instructor, document counseling on the IPC ATF. When conducted by the Operations Officer (and the Operations Officer was not the IPC Instructor), document counseling using CNATRA-GEN 1542/16, Supplementary Jacket Form.

(3) On Satisfactory Completion of a Final Progress Check. The CO or his designated representative will counsel the student. Counseling should consist of the progress check training review process, elimination/retention recommendations, and future courses of action. The CO shall document counseling on the FPC ATF. If conducted by a designated representative, document counseling using CNATRA-GEN 1542/16, Supplementary Jacket Form.

11. Special Instructions And Restrictions

a. Flight Hour/Event Requirements and Restrictions

(1) Programmed Hours and Events. Syllabus-programmed flight hours are 14.5 hours. Event lengths, SXX86, 87, 88 and 89 events will cause variation. Accomplish all syllabus events.

(2) Minimum Night Hours. None.

(3) Maximum Daily Student Activities (Aircraft or Simulator). Students shall not exceed two activities during one duty day or three activities during cross-country flights.

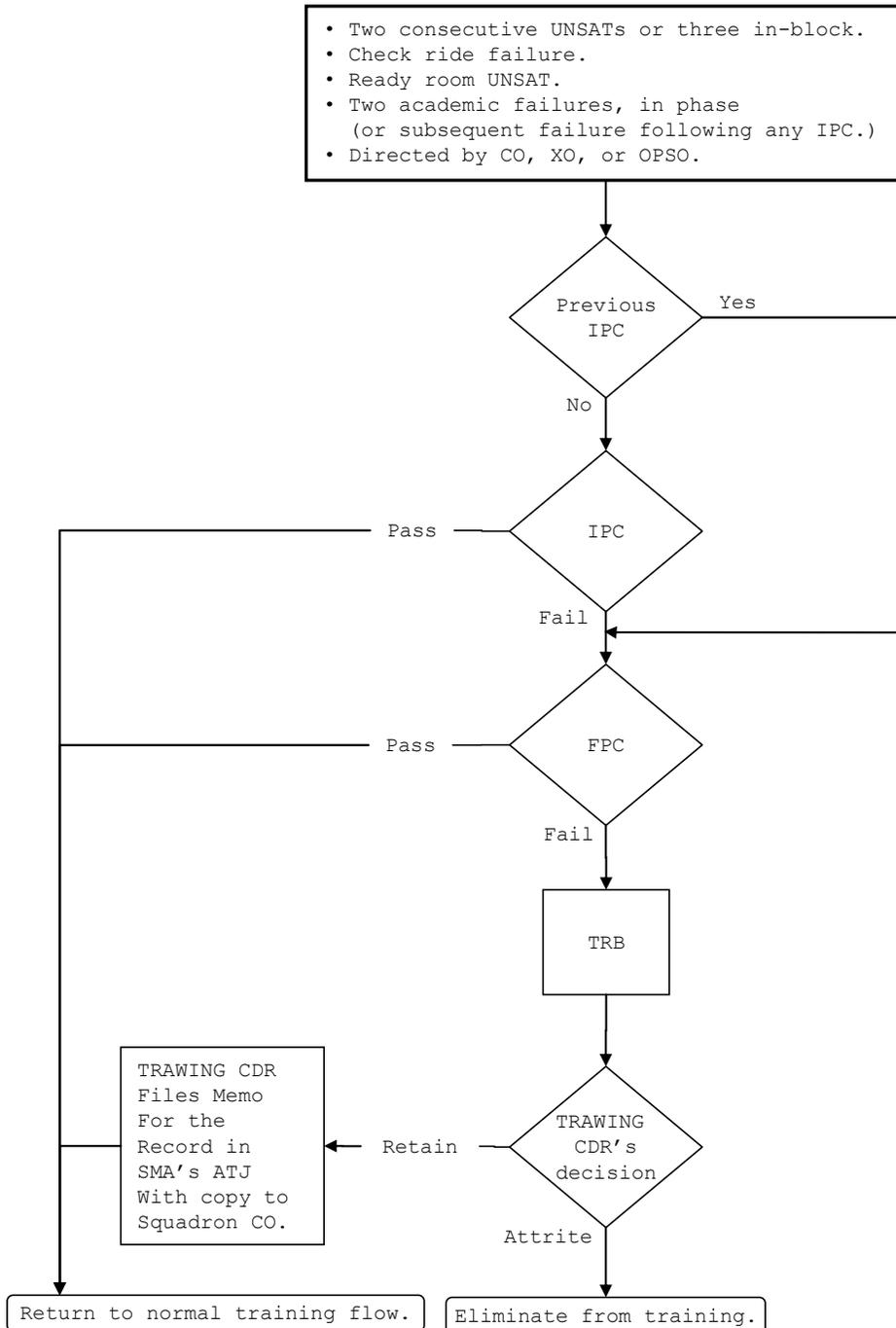
(4) Minimum Student Turn-Times. The student must have at least one hour between debriefing one event and briefing a follow-on event or simulator event. This does not apply to out-and-in or cross-country profiles. However, the instructor shall ensure adequate debrief and brief time is allocated.

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

(6) Crew Rest. A minimum of 12 hours shall elapse between the conclusion of the student's last scheduled event of the day (including associated debrief) and his first scheduled instructional event of the following day.

b. Maneuver Demonstrations. The student shall not perform a maneuver for the first time until the Instructor demonstrates the maneuver, unless previous training adequately fulfills this role.

MNTS PROGRESS CHECK TRAINING REVIEW PROCESS



Chapter II

Ground Training

Block	Media	Title	Events	Hrs	Stage
G01/ G02/ G03	Class	Administration/CRM	3	3.5	See Below

1. Events

G0101	Admin	Introduction to T-1A/T-39		1.5	ASI
G0102	Admin	Administration/I-Grad/Checkout		0.5	ASI
G0201	MIL	T-1A Crew Resource Management		1.5	CRM
G0301	MIL	T-39 Crew Resource Management		1.5	CRM

2. Syllabus Notes

a. For T-1A, complete G0101, G0102, and G0201. Complete G1611 prior to G0201 and complete N5390 prior to G0102.

b. For T-39, complete G0101, G0102, and G0301. Complete G1720 prior to G0301 and N5590 prior to G0102.

3. Discuss Items. None.

Block	Media	Title	Events	Hrs	Stage
G16/ G17	Class/ CAI	Aircraft Systems	<u>T-1A</u> 12 <u>T-39</u> 21	<u>T-1A</u> 21.0 <u>T-39</u> 21.0	See Below

1. Events

G1601	MIL	T-1A Oxygen System and Egress		1.9	T1SYS
G1602	MIL	T-1A Engines		1.9	T1SYS
G1603	MIL	T-1A Fuel System		1.9	T1SYS
G1604	MIL	T-1A Hydraulic System		1.9	T1SYS
G1605	MIL	T-1A Electrical System		1.9	T1SYS
G1606	MIL	T-1A Environmental System		1.9	T1SYS
G1607	MIL	T-1A Anti-Ice System		1.9	T1SYS
G1608	MIL	T-1A Flight Controls		1.9	T1SYS
G1609	MIL	T-1A Avionics		1.9	T1SYS
G1610	MIL	T-1A Systems Test Review		1.9	T1SYS
G1611	P/P	T-1A Emergency Procedures Exam		0.5	T1EP
G1612	CAI	T-1A Systems Exam Test		1.5	T1SYS
G1701	CAI	T-39 Engines		1.0	T39SYS
G1702	MIL	T-39 Engines Lecture		1.0	T39SYS
G1703	CAI	T-39 Fuel System		1.0	T39SYS
G1704	MIL	T-39 Fuel System Lecture		1.0	T39SYS
G1705	CAI	T-39 Electrical System		1.0	T39SYS
G1706	MIL	T-39 Electrical System Lecture		1.0	T39SYS
G1707	CAI	T-39 Hydraulics System		1.0	T39SYS

1. Events (Cont)

G1708	MIL	T-39 Hydraulics System Lecture	1.0	T39SYS
G1709	CAI	T-39 Flight Controls	1.0	T39SYS
G1710	MIL	T-39 Flight Controls Lecture	1.0	T39SYS
G1711	CAI	T-39 Anti-Ice System	1.0	T39SYS
G1712	MIL	T-39 Anti-Ice System Lecture	1.0	T39SYS
G1713	CAI	T-39 Environmental System	1.0	T39SYS
G1714	MIL	T-39 Environmental System Lecture	1.0	T39SYS
G1715	CAI	T-39 Avionics	1.0	T39SYS
G1716	MIL	T-39 Avionics Lecture	1.0	T39SYS
G1717	CAI	T-39 Emergency Procedures	1.0	T39SYS
G1718	MIL	T-39 Emergency Procedures Lecture	1.0	T39SYS
G1719	MIL	T-39 Systems Test Review	1.0	T39SYS
G1720	P/P	T-39 Emergency Procedures Exam	0.5	T39EP
G1721	CAI	T-39 Systems Exam Test	1.5	T39SYS

2. Syllabus Notes

a. For T-1A, complete G1601-12 in order. Also complete G0101 prior to G1601 and complete N1002 prior to G1603.

b. For T-39, complete G1701-21. Complete G0101 prior to beginning CAIs, which can be done in any order. Complete G17 MILs in order with G0101 prior to G1702. Also complete all G17 CAIs prior to G1719, G1719 prior to G1720, and G1720 prior to G1721.

3. Discuss Items. None.

Block	Media	Title	Events	Hrs	Stage
I10/ I11	Class/ CAI	Flight Preparation	4	10.5	FltPrep

1. Events

I1001	MIL	T-1A Flight Preparation - Checklists		4.0	
I1002	MIL	T-1A Flight Preparation - Procedures		4.0	
I1003	MIL	T-1A Flight Preparation - Test Review		1.0	
I1004	CAI	T-1A Flight Preparation Exam Test		1.5	
I1101	MIL	T-39 Flight Preparation - Checklists		4.0	
I1102	MIL	T-39 Flight Preparation - Procedures		4.0	
I1103	MIL	T-39 Flight Preparation - Test Review		1.0	
I1104	CAI	T-39 Flight Preparation Exam Test		1.5	

2. Syllabus Notes

a. For T-1A, complete I1001-4 in order. Also complete G1611 prior to I1001, G1612 prior to I1002, and G0201 prior to I1004.

b. For T-39, complete I1101-4 in order. Also complete G1720 prior to I1101, G1721 prior to I1102, and G0301 prior to I1104.

3. Discuss Items. None.

Block	Media	Title	Events	Hrs	Stage
N10/ N11/ G10	Class/ CAI	Visual Navigation	5	9.2	VNAVFP

1. Events

N1001	MIL	T-1A Visual Navigation Flight Procedures (VNAV 6)		2.4	
N1002	MIL	T-1A Visual Navigation Flight Procedures (VNAV 7)		2.3	
N1003	MIL	T-1A Visual Navigation Flight Procedures (VNAV 8)		1.0	
N1004	CAI	T-1A Visual Navigation Exam Test		1.5	
N1101	MIL	T-39 Visual Navigation Flight Procedures (VNAV 6)		2.4	
N1102	MIL	T-39 Visual Navigation Flight Procedures (VNAV 7)		2.3	
N1103	MIL	T-39 Visual Navigation Flight Procedures (VNAV 8)		1.0	
N1104	CAI	T-39 Visual Navigation Exam Test		1.5	
G1038	MIL	Low Altitude Awareness Training		2.0	

2. Syllabus Notes

a. For T-1A, complete G0101 prior to N1001. Complete N1001-4 and G1038 in order.

b. For T-39, complete G0101 prior to N1101. Complete N1101-4 and G1038 in order.

3. Discuss Items. None.

Block	Media	Title	Events	Hrs	Stage
I01/ I02	Class	FAM-0	1	2.0	INST

1. Events

I0101	LAB	T-1A	FAM-0	2.0
I0201	LAB	T-39	FAM-0	2.0

2. Syllabus Notes

- a. For T-1A, complete I1004 prior to I0101.
- b. For T-39, complete I1104 prior to I0201.

3. Discuss Items. None.

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Chapter III

Contact Training

This chapter does not apply to Intermediate Jet Training.

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Chapter IV

Instrument Training

1. General. During Instrument Training, instructors should ensure that students accomplish a cross-section of high and low altitude instrument approach procedures.
2. Seating. Students shall occupy the copilot seat for all events in this stage.
3. Matrices. There is a single matrix following the block description of the single block for each track in this chapter.
4. Stage MIF. None.

Block	Media	Title	Events	Hrs	H/X
I50	T-1A	Intermediate Instrument Navigation (INAV)	4	8.0	2.0

1. Prerequisites

- a. G1038 (Low Altitude Awareness Training).
- b. I0101 (T-1A FAM-0).

2. Syllabus Notes

a. Flights can be local events, but may be out-and-in or cross-country events based on squadron requirements.

b. Students shall prepare and have available a completed DD 175 and jet card for both a primary and an alternate route, and a completed briefing board.

c. On I5001, the instructor shall demonstrate the brief.

3. Special Syllabus Requirements. None.

4. Discuss Items

I5001

IFR chart interpretation, FLIP review, systems knowledge, groundspeed checks, time analysis, fuel management, wind considerations, divert criteria, weather analysis, approach procedures, i.e., ILS, PAR/ASR, no gyro approach, HI/LO TACAN, GCA, and any emergency procedure and aircraft operating limitations.

I5002

Any procedure and any emergency procedure and limit.

I5003

Any procedure and any emergency procedure and limit.  
Enroute delay and low approach procedures.

I5004

Any procedure and any emergency procedure and limit.  
 Mastery of CRM skills and syllabus should manifest in the student demonstrating good decision making and leadership as the student directs the flight.

5. Block MIF

CTS REF	MANEUVER	I5004
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work Recognition	4+
5	Mission Planning	4+
6	Checklists	4+
7	Radio Procedures	4+
8	System Knowledge	4+
9	Equipment Operation	4+
10	CRM	4+
12	Brief	4+
13	Ground Operations	4+
14	Departure	4+
15	Enroute Navigation	4+
16	Point-to-Point Navigation	4+
17	Fuel Management	4+
18	Time Estimates	4+
21	Turnpoint Procedures	4+
26	Enroute Delay	4+
27	Prioritization	4+
28	Approach	4+
29	Scan	4+

Block	Media	Title	Events	Hrs	H/X
I51	T-39G/N	Intermediate Instrument Navigation (INAV)	4	8.0	2.0

1. Prerequisites

- a. G1038 (Low Altitude Awareness Training).
- b. I0201 (T-39 FAM-0).

2. Syllabus Notes

a. Flights can be local events, but may be out-and-in or cross-country events based on squadron requirements.

b. Students shall prepare and have available a completed DD 175 and jet card for both a primary and an alternate route, and a completed briefing board.

c. On I5101, the instructor shall demonstrate the brief.

3. Special Syllabus Requirements. None.

4. Discuss Items

I5101

IFR chart interpretation, FLIP review, systems knowledge, groundspeed checks, time analysis, fuel management, wind considerations, divert criteria, weather analysis, approach procedures, i.e., ILS, PAR/ASR, no gyro approach, HI/LO TACAN, GCA, and any emergency procedure and aircraft operating limitations.

I5102

Any procedure and any emergency procedure and limit.

I5103

Any procedure and any emergency procedure and limit.  
Enroute delay and low approach procedures.

I5104

Any procedure and any emergency procedure and limit.  
Mastery of CRM skills and syllabus should manifest in the student demonstrating good decision making and leadership as the student directs the flight.

5. Block MIF

CTS REF	MANEUVER	I5104
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work Recognition	4+
5	Mission Planning	4+
6	Checklists	4+
7	Radio Procedures	4+
8	System Knowledge	4+
9	Equipment Operation	4+
10	CRM	4+
12	Brief	4+
13	Ground Operations	4+
14	Departure	4+
15	Enroute Navigation	4+
16	Point-to-Point Navigation	4+
17	Fuel Management	4+
18	Time Estimates	4+
21	Turnpoint Procedures	4+
26	Enroute Delay	4+
27	Prioritization	4+
28	Approach	4+
29	Scan	4+

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Chapter V

Navigation Training

1. Seating. Students shall occupy the copilot's seat for all events in this stage.

2. Matrices. The following matrices are an overview of the entire Navigation Stage for each platform. The purpose of each matrix is to provide the student 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.

3. T-1A Stage MIF

 Check Ride Event

<b>T-1A NAVIGATION STAGE MANEUVER ITEM FILE</b>			
<b>CTS REF</b>	<b>MANEUVER</b>	<b>N5203</b>	<b>N5390</b>
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	4+	4+
3	Headwork/Situational Awareness	4+	4+
4	Basic Air Work Recognition	4+	4+
5	Mission Planning	4+	4+
6	Checklists	4+	4+
7	Radio Procedures	4+	4+
8	System Knowledge	4+	4+
9	Equipment Operation	4+	4+
10	CRM	4+	4+
11	Low-Level Chart	4+	4+
12	Brief	4+	4+

MIF continued on next page.

<b>T-1A NAVIGATION STAGE MANEUVER ITEM FILE</b>			
<b>CTS REF</b>	<b>MANEUVER</b>	<b>N5203</b>	<b>N5390</b>
13	Ground Operations	4+	4+
14	Departure	4	4+
15	Enroute Navigation	4+	4+
16	Point-to-Point Navigation	4	4+
17	Fuel Management	4+	4+
18	Time Estimates	4+	4+
19	Intermediate Checkpoints	4+	4+
20	Turnpoint Identification	4+	4+
21	Turnpoint Procedures	4+	4+
22	DR Navigation	4+	4+
23	Wind Consideration	4+	4+
24	Course Corrections	4+	4+
25	Time Corrections	4+	4+
26	Enroute Delay	4	4
27	Prioritization	4+	4+
28	Approach	4	4+
29	Scan	4+	4+
30	Low-Level Entry/Exit	4+	4+

4. T-39 Stage MIF

Check Ride Event

<b>T-39 NAVIGATION STAGE MANEUVER ITEM FILE</b>			
<b>CTS REF</b>	<b>MANEUVER</b>	<b>N5403</b>	<b>N5590</b>
1	General Knowledge/Procedures	4+	4+
2	Emergency Procedures	4+	4+
3	Headwork/Situational Awareness	4+	4+
4	Basic Air Work Recognition	4+	4+
5	Mission Planning	4+	4+
6	Checklists	4+	4+
7	Radio Procedures	4+	4+
8	System Knowledge	4+	4+
9	Equipment Operation	4+	4+
10	CRM	4+	4+
11	Low-Level Chart	4+	4+
12	Brief	4+	4+
13	Ground Operations	4+	4+
14	Departure	4	4+
15	Enroute Navigation	4+	4+
16	Point-to-Point Navigation	4	4+
17	Fuel Management	4+	4+
18	Time Estimates	4+	4+
19	Intermediate Checkpoints	4+	4+
20	Turnpoint Identification	4+	4+

MIF continued on next page.

<b>T-39 NAVIGATION STAGE MANEUVER ITEM FILE</b>			
<b>CTS REF</b>	<b>MANEUVER</b>	<b>N5403</b>	<b>N5590</b>
21	Turnpoint Procedures	4+	4+
22	DR Navigation	4+	4+
23	Wind Consideration	4+	4+
24	Course Corrections	4+	4+
25	Time Corrections	4+	4+
26	Enroute Delay	4	4
27	Prioritization	4+	4+
28	Approach	4	4+
29	Scan	4+	4+
30	Low-Level Entry/Exit	4+	4+

Block	Media	Title	Events	Hrs	H/X
N52	T-1A	Visual Navigation	3	4.5	1.5

1. Prerequisite. I5001.

2. Syllabus Notes

a. Flight shall be conducted as assigned by a published Visual Route IAW AP/1B or SOP, whichever is more stringent. Plan to terminate with a precise ETA by using speed and heading adjustments and visual references from a chart to arrive on target on time.

b. N5201 should be a local event. N5202 and N5203 may be local events or combined with an event as an out-and-in or cross-country event. N5390 may be combined with an event as an out-and-in or cross-country event.

c. Students shall prepare and have available a DD 175, a jet card, weather, NOTAMs, and an appropriate low-level navigation chart.

d. On N5201, the instructor shall demonstrate the low-level portion of the briefing and the first leg of the low-level, beginning two minutes prior to entry through the wings-level call after the second turnpoint.

3. Special Syllabus Requirements. None.

4. Discuss Items

N5201

VFR chart interpretation and symbology, emergency field selection, airspace classification, wind consideration, intermediate checkpoint selection, scan, time and course corrections, turnpoint procedures, route abort procedures, any EP, and CRM as a skill set that enables the student to manage all these tasks in the dynamic flight environment.

N5202

Any EP, review low-level procedures as necessary.

N5203

Any EP, review low-level procedures as necessary, and CRM focus on mission analysis, decision-making, and leadership: as the student builds the mental model of the flight, he will be expected to lead the crew to successful mission accomplishment.

5. Block MIF

CTS REF	MANEUVER	N5203
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work Recognition	4+
5	Mission Planning	4+
6	Checklists	4+
7	Radio Procedures	4+
8	System Knowledge	4+
9	Equipment Operation	4+
10	CRM	4+
11	Low-Level Chart	4+
12	Brief	4+
13	Ground Operations	4+
14	Departure	4
15	Enroute Navigation	4+
16	Point-to-Point Navigation	4
17	Fuel Management	4+
18	Time Estimates	4+
19	Intermediate Checkpoints	4+
20	Turnpoint Identification	4+
21	Turnpoint Procedures	4+
22	DR Navigation	4+
23	Wind Consideration	4+

MIF cont on next page.

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CTS REF	MANEUVER	N5203
24	Course Corrections	4+
25	Time Corrections	4+
26	Enroute Delay	4
27	Prioritization	4+
28	Approach	4
29	Scan	4+
30	Low-Level Entry/Exit	4+

Block	Media	Title	Events	Hrs	H/X
N53	T-1A	Jet Navigation Check Ride	1	2.0	2.0

1. Prerequisites

- a. I5004.
- b. N5203.

2. Syllabus Notes

- a. Flight may be combined with an event and flown as an out-and-in or cross-country event.
- b. An option of one instrument approach may be performed.
- c. Students shall prepare and have available a DD 175, a jet card, weather, NOTAMs, and an appropriate navigation chart.

3. Special Syllabus Requirements. None.

4. Discuss Items. Any instrument, navigation, or emergency procedure and any aircraft system.

5. Block MIF

CTS REF	MANEUVER	N5390
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work Recognition	4+
5	Mission Planning	4+
6	Checklists	4+
7	Radio Procedures	4+
8	System Knowledge	4+
9	Equipment Operation	4+

MIF cont on next page.

CTS REF	MANEUVER	N5390
10	CRM	4+
11	Low-Level Chart	4+
12	Brief	4+
13	Ground Operations	4+
14	Departure	4+
15	Enroute Navigation	4+
16	Point-to-Point Navigation	4+
17	Fuel Management	4+
18	Time Estimates	4+
19	Intermediate Checkpoints	4+
20	Turnpoint Identification	4+
21	Turnpoint Procedures	4+
22	DR Navigation	4+
23	Wind Consideration	4+
24	Course Corrections	4+
25	Time Corrections	4+
26	Enroute Delay	4
27	Prioritization	4+
28	Approach	4+
29	Scan	4+
30	Low-Level Entry/Exit	4+

Block	Media	Title	Events	Hrs	H/X
N54	T-39N	Visual Navigation	3	4.5	1.5

1. Prerequisite. I5101.

2. Syllabus Notes

a. Flight shall be conducted as assigned by a published Visual Route IAW AP/1B, or SOP, whichever is more stringent. Plan to terminate with a precise ETA by using speed and heading adjustments and visual references from a chart to arrive on target on time.

b. N5401 should be a local event. N5402 and N5403 may be local events or combined with an event as an out-and-in or cross-country event. N5590 may be combined with an event as an out-and-in or cross-country event.

c. Students shall prepare and have available a DD 175, a jet card, weather, NOTAMs, and an appropriate low-level navigation chart.

d. On N5401, the instructor shall demonstrate the low-level portion of the briefing and the first leg of the low-level, beginning two minutes prior to entry through the wings-level call after the second turnpoint.

3. Special Syllabus Requirements. None.

4. Discuss Items

N5401

VFR chart interpretation and symbology, emergency field selection, airspace classification, wind consideration, intermediate checkpoint selection, scan, time and course corrections, turnpoint procedures, route abort procedures, any EP, and CRM as a skill set that enables the student to manage all these tasks in the dynamic flight environment.

N5402

Any EP, review low-level procedures as necessary.

N5403

Any EP, review low-level procedures as necessary, CRM focus on mission analysis, decision-making, and leadership: as the student builds the mental model of the flight, he will be expected to lead the crew to successful mission accomplishment.

5. Block MIF

CTS REF	MANEUVER	N5403
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work Recognition	4+
5	Mission Planning	4+
6	Checklists	4+
7	Radio Procedures	4+
8	System Knowledge	4+
9	Equipment Operation	4+
10	CRM	4+
11	Low-Level Chart	4+
12	Brief	4+
13	Ground Operations	4+
14	Departure	4
15	Enroute Navigation	4+
16	Point-to-Point Navigation	4
17	Fuel Management	4+
18	Time Estimates	4+
19	Intermediate Checkpoints	4+
20	Turnpoint Identification	4+
21	Turnpoint Procedures	4+
22	DR Navigation	4+
23	Wind Consideration	4+

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CTS REF	MANEUVER	N5403
24	Course Corrections	4+
25	Time Corrections	4+
26	Enroute Delay	4
27	Prioritization	4+
28	Approach	4
29	Scan	4+
30	Low-Level Entry/Exit	4+

Block	Media	Title	Events	Hrs	H/X
N55	T-39N	Jet Navigation Check Ride	1	2.0	2.0

1. Prerequisites

- a. I5104.
- b. N5403.

2. Syllabus Notes

- a. Flight may be combined with an event and flown as an out-and-in or cross-country event.
- b. An option of one instrument approach may be performed.
- c. Students shall prepare and have available a DD 175, a jet card, weather, NOTAMs, and an appropriate navigation chart.

3. Special Syllabus Requirements. None.

4. Discuss Items. Any instrument, navigation, or emergency procedure and any aircraft system.

5. Block MIF

CTS REF	MANEUVER	N5590
1	General Knowledge/Procedures	4+
2	Emergency Procedures	4+
3	Headwork/Situational Awareness	4+
4	Basic Air Work Recognition	4+
5	Mission Planning	4+
6	Checklists	4+
7	Radio Procedures	4+
8	System Knowledge	4+

MIF cont on next page.

CTS REF	MANEUVER	N5590
9	Equipment Operation	4+
10	CRM	4+
11	Low-Level Chart	4+
12	Brief	4+
13	Ground Operations	4+
14	Departure	4+
15	Enroute Navigation	4+
16	Point-to-Point Navigation	4+
17	Fuel Management	4+
18	Time Estimates	4+
19	Intermediate Checkpoints	4+
20	Turnpoint Identification	4+
21	Turnpoint Procedures	4+
22	DR Navigation	4+
23	Wind Consideration	4+
24	Course Corrections	4+
25	Time Corrections	4+
26	Enroute Delay	4
27	Prioritization	4+
28	Approach	4+
29	Scan	4+
30	Low-Level Entry/Exit	4+

Chapter VI

Formation Training

This chapter does not apply to Intermediate Jet Training.

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Chapter VII

Tactical Training

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Chapter VIII

Course Training Standards (CTS) (T-1A/T-39)

1. Purpose. These standards outline the tasks and proficiency required of student Naval Flight Officers and Air Force Weapons System Officers during the Intermediate Jet stage of training.

2. Student Duties and Responsibilities

- a. Plan the mission.
- b. Ensure the aircraft is preflighted, inspected, and equipped for the assigned mission.
- c. Operate the aircraft to accomplish the mission using sound judgment and airmanship.

3. General Standards

- a. Achieve training standards for instrument (IMC) and visual meteorological condition (VMC) maneuvers in conjunction with visual clearing.
- b. "Standard" equates to **good** (G/4).
- c. Momentary deviations outside CTS that do not compromise flight safety are acceptable if subsequent corrections are timely.
- d. Procedural knowledge and application must comply with applicable directives and allow efficient mission accomplishment. If individual tasks require pre-mission planning, the standards from **MISSION PLANNING** apply.

4. Execution. The maneuver item file (MIF) regulates student progression to meet required standards prior to phase completion. Instructor NFOs/CSOs shall evaluate student performance against these standards.

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

BEHAVIOR STATEMENT	STANDARDS
Graded Item	
<ul style="list-style-type: none"> <li>• A brief description of the behavior, required action, and/or conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• The specific standards for the action. May be read as "The student NFO/CSO..."</li> </ul>

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. Beginning with Instruments, each stage's MIF table is listed followed by the Course Training Standards unique to that stage. Once the standard for a graded item has been established, it will be omitted from later stages where it is also graded.

7. Course Training Standards

UNIVERSALLY GRADED ITEMS

BEHAVIOR STATEMENT	STANDARDS
1. General Knowledge/Procedures	
<ul style="list-style-type: none"> <li>• Maintain working knowledge of all appropriate flight training instructions and directives.</li> </ul>	<ul style="list-style-type: none"> <li>• Recites, discusses, and/or performs all applicable items essential to the operation of the airplane.</li> </ul>
2. Emergency Procedures	
<ul style="list-style-type: none"> <li>• Maintain in-depth knowledge of all aircraft specific emergency procedures.</li> <li>• Utilize PCL as required by the NATOPS and FTI.</li> </ul>	<ul style="list-style-type: none"> <li>• Correctly analyzes situation given real or hypothetical indications.</li> <li>• Performs/recites critical action steps from memory without error.</li> <li>• Uses checklist to complete all procedures.</li> <li>• Familiar with all information contained in the PCL, able to access that information in a correct and timely manner.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
3. Headwork/Situational Awareness	
<ul style="list-style-type: none"> <li>● Comply with the NATOPS and FTI while maintaining situational awareness sufficient for flight safety.</li> </ul>	<ul style="list-style-type: none"> <li>● Understands instructions, demonstrations, and explanations.</li> <li>● Foresees and avoids possible difficulties and makes appropriate recommendations for the situation.</li> <li>● Remains alert and spatially oriented.</li> <li>● Maintains overall awareness with regard to fuel state, aircraft configuration, nearby traffic, and weather.</li> </ul>
4. Basic Air Work Recognition (BAR)	
<ul style="list-style-type: none"> <li>● Establish and maintain desired altitude, airspeed, and heading during flight.</li> </ul>	<ul style="list-style-type: none"> <li>● Makes recommendations to: <ul style="list-style-type: none"> <li>▶ Maintain aircraft within 100 feet, 10 KIAS, 10° of heading.</li> <li>▶ Appropriately use power, attitude, and trim.</li> <li>▶ Level off within 100 feet of desired altitude.</li> <li>▶ Accomplish within ±10 seconds of correct time as applicable.</li> </ul> </li> </ul>
5. Mission Planning	
<ul style="list-style-type: none"> <li>● Perform mission planning required to fly the mission in accordance with all applicable directives and instructions.</li> </ul>	<ul style="list-style-type: none"> <li>● Obtains and interprets a valid Wx briefing/information for all flights.</li> <li>● Completes DD 175 without error.</li> <li>● Completes Jet Log without error.</li> <li>● Reviews FLIP documents, NOTAMs, and other applicable flight information.</li> <li>● Has all proper in-flight publications for the specified mission.</li> <li>● Plans alternate course of action.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
6. Checklists	
<ul style="list-style-type: none"> <li>● Complete aircraft/mission specific checklists as required by the NATOPS and FTIs.</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly and expeditiously performs all required checklists in accordance with the NATOPS and FTI.</li> <li>● Initiates cruise checklist upon level-off at cruise altitude and periodically throughout the flight.</li> <li>● Initiates landing checklist NLT slowing through 180 KIAS T-39/200 KIAS T-1A in the break, NLT 7 NM prior to TDZ on TACAN approach, <math>\pm 30^\circ</math> and within 12 NM on GCA, same as GCA but NLT "1 dot below glideslope" on ILS.</li> <li>● Visually checks all switches on C&amp;R.</li> </ul>
7. Radio Procedures	
<ul style="list-style-type: none"> <li>● Communicates via two-way UHF/VHF radio using standard terminology.</li> </ul>	<ul style="list-style-type: none"> <li>● Understands and responds to 90 percent of incoming calls.</li> <li>● Makes all calls when required using standard FAA and military terminology during ground operations, departure, enroute, and arrival.</li> <li>● Makes timely transmissions without stepping on others.</li> <li>● Exercises communications brevity consistent with FAA and VOICE COMMUNICATIONS FTI requirements.</li> </ul>
8. System Knowledge	
<ul style="list-style-type: none"> <li>● Maintain working knowledge of NATOPS and directives.</li> </ul>	<ul style="list-style-type: none"> <li>● Able to describe the correct nomenclature, purpose, characteristics, functions, and limitations of all aircraft systems without error.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
9. Equipment Operation	
<ul style="list-style-type: none"> <li>● Locate and operate aircraft systems.</li> </ul>	<ul style="list-style-type: none"> <li>● Knows the location of all cockpit controls and instrumentation.</li> <li>● Correctly reads cockpit instrumentation.</li> <li>● Operates all copilot equipment/controls without error.</li> </ul>
10. Crew Resource Management (CRM)	
<ul style="list-style-type: none"> <li>● Use available crew and cockpit resources to optimize workload management, make timely decisions to achieve mission accomplishment, and to maintain good situational awareness.</li> </ul>	<ul style="list-style-type: none"> <li>● Demonstrates use of the seven skills to effectively use all resources, information, and knowledge to guide the aircraft and crew to successful achievement of all tasks in the flight.</li> <li>● Coordinates with the pilot to perform cockpit duties, i.e., safety of flight information, delegation of crew duties using proper format, phraseology, and terminology, changing radio frequencies, tuning proper NAVAIDs, altimeter settings, and tasks required for mission accomplishment.</li> <li>● Exercises proper checklist discipline and avoids talking over the radio/ICS communication.</li> </ul>

**INSTRUMENT/NAVIGATION**

These Instrument/Navigation standards call for an action to be accomplished in a safe and proper manner. The SNFO/SCSO will verbally direct the pilot in a timely and procedurally correct manner to accomplish the action(s). If the instructor deems the verbal direction sequentially correct and accurate to the situation/maneuver, the SNFO/SCSO may meet, or in some cases, exceed the training standard.

BEHAVIOR STATEMENT	STANDARDS
11. Low-Level Chart	
<ul style="list-style-type: none"> <li>● Prepare chart for use in low-level navigation in accordance with FTI.</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly plots AP-1B route points and draws route corridors without error.</li> <li>● Correctly identifies and annotates every turnpoint and target.</li> <li>● Applies CHUM corrections to the chart <math>\pm 10</math> NM of course with most recent available data.</li> <li>● Course centerlines are within <math>\pm 2^\circ</math> of actual MC in accordance with Intermediate Standards.</li> <li>● Time ticks correspond to the turnpoint/target times <math>\pm 0.5</math> NM.</li> <li>● Times to each point must be within <math>\pm 18</math> seconds for T-39 and <math>\pm 24</math> seconds for T-1A in accordance with Intermediate Standards.</li> <li>● Times at each turnpoint/target are rounded to the nearest 0.5 NM.</li> <li>● Annotates all applicable airspace and crossing routes.</li> <li>● Plans leg fuels and MCFs accurate to within <math>\pm 100</math> pounds.</li> <li>● Annotates four appropriate divert fields of which two must be military.</li> <li>● Annotates appropriate leg information utilizing doghouses.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
12. Brief	
<ul style="list-style-type: none"> <li>● Perform flight briefing consistent with squadron SOP, NATOPS, and the FTI.</li> </ul>	<ul style="list-style-type: none"> <li>● Performs an accurate time hack.</li> <li>● Completes ADMIN portion in a concise manner.</li> <li>● Answers questions of the day correctly.</li> <li>● Chronologically discusses the mission flow, to include all student action items.</li> </ul> <p><u>LL NAV</u></p> <ul style="list-style-type: none"> <li>● Briefs the instructor from memory with a description of every turnpoint and target, oriented to the inbound course from a cockpit perspective.</li> </ul>
13. Ground Operations	
<ul style="list-style-type: none"> <li>● Prepare aircraft for flight.</li> <li>● Safely directs the taxi of the aircraft using applicable airfield diagram as a reference.</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly and efficiently performs exterior/interior inspections per NATOPS.</li> <li>● Safely directs the taxi of the aircraft from the parking area to the runway via local procedures, using applicable airfield diagram as a reference.</li> <li>● Visually clears the aircraft at every intersection or possible obstruction.</li> <li>● Performs a postflight exterior inspection.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
14. Departure	
<ul style="list-style-type: none"> <li>● Perform all departure procedures per NATOPS and FTI.</li> <li>● Safely navigate IFR departure.</li> </ul>	<ul style="list-style-type: none"> <li>● Makes required calls on takeoff roll per FTI.</li> <li>● Complies with departure procedures or controller instructions.</li> <li>● Maintains arcs <math>\pm 1.0</math> NM; course <math>\pm 3^\circ</math> or 2 NM (whichever is less).</li> <li>● Calculates lead points to join/depart arc depending on airspeed: <math>\pm 0.5</math> NM or <math>2^\circ</math>.</li> </ul>
15. Enroute Navigation	
<ul style="list-style-type: none"> <li>● Maintain a specified enroute course on appropriate radial or airway.</li> </ul>	<ul style="list-style-type: none"> <li>● Maintains course while radial tracking <math>\pm 5^\circ</math> or 3 NM (whichever is less).</li> <li>● Determines wind direction and speed <math>\pm 30^\circ</math> and <math>\pm 10</math> knots.</li> <li>● Applies proper crosswind heading corrections and compensations.</li> <li>● Properly leads turns within <math>\pm 0.5</math> NM at NAVAIDs and fixes, taking into account observed actual groundspeed.</li> <li>● Makes appropriate recommendations for enroute flight plan changes given direction of flight, FLIP, weather, and mission requirements.</li> <li>● Changes NAVAID and CDI course at the proper switchover point while on an IFR airway.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
16. Point-to-Point Navigation	
<ul style="list-style-type: none"> <li>● Proceed direct to an assigned fix using VOR/DME or TACAN point-to-point procedures per FTI.</li> </ul>	<ul style="list-style-type: none"> <li>● Expeditiously establishes an initial heading to the fix within 30° of actual course.</li> <li>● Applies proper crosswind heading corrections and compensations.</li> <li>● Continuously updates point-to-point navigation to arrive within 3 NM and 10° (whichever is less), avoiding sudden, large (&gt;30°) heading changes.</li> <li>● Properly leads turns at fixes taking into account observed actual groundspeed.</li> </ul>
17. Fuel Management	
<p><u>INAV</u></p> <ul style="list-style-type: none"> <li>● Update destination IAF fuel estimates.</li> <li>● Make recommendations to an alternate destination if necessary.</li> </ul> <p><u>LL NAV</u></p> <ul style="list-style-type: none"> <li>● Accurately monitors fuel to determine mission feasibility.</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly reads and totals fuel quantity and flow gauges.</li> <li>● Makes appropriate recommendations regarding power setting, altitude, and route in order to arrive at destination/alternate with required fuel minimums.</li> </ul> <p><u>INAV</u></p> <ul style="list-style-type: none"> <li>● Calculate IAF fuel estimates to within ±100 pounds of instructor calculations.</li> </ul> <p><u>LL NAV</u></p> <ul style="list-style-type: none"> <li>● Accurately compares MCF with actual fuel and makes appropriate recommendations regarding mission feasibility.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
18. Time Estimates	
<ul style="list-style-type: none"> <li>● Update estimated time of arrival at each navigational checkpoint given a specified course and/or flight log, factoring in observed meteorological conditions.</li> </ul>	<ul style="list-style-type: none"> <li>● Calculates estimated time of arrival at each navigational checkpoint within one minute of actual mark on top.</li> <li>● Times shall be stated in minutes and seconds (00+00).</li> </ul>
19. Intermediate Checkpoints	
<ul style="list-style-type: none"> <li>● Fixes position off ground references depicted on the chart and corrects if needed.</li> </ul>	<ul style="list-style-type: none"> <li>● Utilizes at least one identifiable ground reference for each leg, if possible, to establish position within 0.5 NM.</li> <li>● Visually locates, identifies, and utilizes 50 percent of intermediate checkpoints.</li> </ul>
20. Turnpoint Identification	
<ul style="list-style-type: none"> <li>● Visually locate, identify, and fix position off preplanned turnpoints.</li> </ul>	<ul style="list-style-type: none"> <li>● Visually identifies and locates 80 percent of turnpoints.</li> <li>● Must identify and overfly the target within 0.5 NM and <math>\pm 30</math> seconds.</li> </ul>
21. Turnpoint Procedures	
<ul style="list-style-type: none"> <li>● Perform instrument turnpoint calls.</li> </ul>	<ul style="list-style-type: none"> <li>● Makes appropriate instrument two-minutes-prior, mark-on-top, and wings-level calls using proper format and terminology (90% accuracy).</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
22. Dead Reckoning (DR) Navigation	
<ul style="list-style-type: none"> <li>• Navigate the low-level route by means of time and heading.</li> </ul>	<ul style="list-style-type: none"> <li>• Applies correct compensations to the base airspeed <math>\pm 5</math> KIAS and <math>\pm 2^\circ</math> to the heading and directs the pilot within 15 seconds of identifying the wind.</li> <li>• Updates the ETA to every turnpoint except the target if less than 12 seconds off time.</li> <li>• Turns on the updated ETA if turnpoint is not visually acquired.</li> <li>• Utilizes clock, chart, ground procedure to accurately fix position.</li> </ul>
23. Wind Consideration	
<ul style="list-style-type: none"> <li>• Identify the wind and apply compensations.</li> </ul>	<ul style="list-style-type: none"> <li>• Correctly identifies the wind velocity <math>\pm 10</math> KIAS and direction <math>\pm 30^\circ</math>.</li> </ul>
24. Course Corrections	
<ul style="list-style-type: none"> <li>• Maintain the centerline of the route, apply corrections back to centerline in a timely manner.</li> </ul>	<ul style="list-style-type: none"> <li>• Never deviates outside route corridor.</li> <li>• Applies the course correction first when off course and off time after fixing position.</li> <li>• Initiates standard course corrections and BDHIs in accordance with FTI.</li> </ul>
25. Time Corrections	
<ul style="list-style-type: none"> <li>• Make time corrections to arrive over the target on time.</li> </ul>	<ul style="list-style-type: none"> <li>• Initiates speed corrections when 12 seconds or more off preplanned time in accordance with FTI.</li> <li>• Overflies the target within <math>\pm 30</math> seconds of preplanned time.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
26. Enroute Delay	
<ul style="list-style-type: none"> <li>● Navigate a published instrument approach, course rules, or other visual approach.</li> <li>● Execute holding procedures when required.</li> </ul>	<ul style="list-style-type: none"> <li>● Complies with published approach procedures and controller instructions.</li> <li>● Efficiently makes use of all onboard navigational equipment to maximize situational awareness.</li> <li>● Maintains arcs <math>\pm 1.0</math> NM; course <math>\pm 3^\circ</math> or 2 NM (whichever is less).</li> <li>● Calculates lead point to join/depart an arc depending on airspeed: <math>\pm 0.5</math> NM or <math>2^\circ</math>.</li> <li>● Makes appropriate recommendations for entering holding and maintains the specified holding pattern taking into account winds.</li> <li>● Prior to reaching the missed approach point, visually acquires the runway and directs the pilot to its location relative to the aircraft.</li> <li>● Briefs missed approach or climbout instructions prior to MAP/DH.</li> <li>● Effectively and safely executes missed approach and climbout procedures.</li> </ul>
27. Prioritization	
<ul style="list-style-type: none"> <li>● Maintains prioritization sufficient for flight safety and effective operation of the aircraft.</li> </ul>	<ul style="list-style-type: none"> <li>● Effectively prioritizes task loading in descending order of importance, i.e., aviation, navigation, communication, and checklists, per FTI-recommended minimum requirements.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
28. Approach	
<ul style="list-style-type: none"> <li>● Navigate a published instrument approach, course rules, or other visual approach.</li> <li>● Execute holding procedures when required.</li> </ul>	<ul style="list-style-type: none"> <li>● Complies with published approach procedures and controller instructions.</li> <li>● Efficiently makes use of all onboard navigational equipment to maximize situational awareness.</li> <li>● Maintains arcs <math>\pm 1.0</math> NM (LL NAV: <math>\pm 0.5</math> NM); course <math>\pm 3^\circ</math> or 2 NM (whichever is less).</li> <li>● Calculates lead point to join/depart an arc depending on airspeed: <math>\pm 0.5</math> NM or <math>2^\circ</math>.</li> <li>● Makes appropriate recommendations for entering holding and maintains the specified holding pattern taking into account winds.</li> <li>● Familiar with NPA VFR course rules; able to visually identify initial points.</li> <li>● Prior to reaching the missed approach point, visually acquires the runway and directs the pilot to its location relative to the aircraft.</li> <li>● Briefs missed approach or climbout instructions prior to MAP/DH.</li> </ul>

BEHAVIOR STATEMENT	STANDARDS
29. Scan	
<ul style="list-style-type: none"> <li>● Maintain instrument/visual scan sufficient for safe operation/navigation of the aircraft in instrument or low-level conditions.</li> </ul>	<ul style="list-style-type: none"> <li>● Clears the aircraft prior to all turns; turns greater than 30° require verbal clearing.</li> </ul> <p><u>INAV</u></p> <ul style="list-style-type: none"> <li>● Recognizes any abnormal system indications.</li> <li>● Recognizes any deviations from desired heading, airspeed, or altitude and makes recommendations for appropriate and timely corrections.</li> <li>● Makes all FTI required altitude calls.</li> </ul> <p><u>LL NAV</u></p> <ul style="list-style-type: none"> <li>● Locates and identifies threats ahead of the aircraft, and directs the pilot to avoid them.</li> <li>● Locates and identifies visual landmarks ahead of the aircraft, initiates corrections if off course and/or time.</li> </ul>
30. Low-Level Entry/Exit	
<ul style="list-style-type: none"> <li>● Enter/Exit the low-level safely and on time.</li> </ul>	<ul style="list-style-type: none"> <li>● Visually acquires the entry point.</li> <li>● Directs/Navigates the aircraft within 3 NM of the entry point and in a position to enter the route.</li> <li>● Completes the low-level entry/exit checklist.</li> <li>● Completes the FSS call per FTI without error.</li> <li>● Controls time to enter the route ±5 minutes of scheduled route time.</li> </ul>