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

CNATRAINST 1542.159
N715

17 MAR 2008

CNATRA INSTRUCTION 1542.159

Subj: T-45 COMBINED FLIGHT TRAINING CURRICULUM

Ref: (a) CNATRAINST 1550.6E

1. Purpose. To issue the curriculum for training Student Naval Aviators in the T-45 Intermediate Jet, Intermediate E2/C2 and Advanced Strike Flight phases of training. The curriculum is prepared in accordance with reference (a).

2. Cancellation. CNATRAINST 1542.125B & 1542.135B. CNATRAINST 1542.108E, 1542.125A and 1542.135A will be cancelled upon the completion of the last student enrolled.

3. Background. This curriculum is a consolidation of CNATRAINST 1542.125B and CNATRAINST 1542.135B. It incorporates events from the previous curricula required to train SNAs in either the Strike or E2/C2 pipelines. All students will complete the Intermediate Jet phase (formerly TS phase one), followed by either Advanced Strike (formerly TS phase two) or Intermediate E2/C2, depending on the results of a selection board. The Intermediate E2/C2 phase is made up of those events that were required by CNATRAINST 1542.135B but are not accomplished in the new Intermediate Jet phase.

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

5. Forms. The CNATRA-GEN forms required by this directive, listed in Appendix A may be obtained by submitting a DD-1348 to Naval Air Station, Pensacola, Supply Department (Code 19560), Pensacola, Florida 32508 or through local SERVMARTS. Aviation Training Forms (ATFs) for this curriculum are computer generated by the Training Integrated Management Systems TIMS) and are not stocked in hard copy.

This system has been assigned a system form number of CNATRA 1542/2022. The CNATRA POC is LCDR Michael Brearley, N715, DSN 861-3895 and FAX DSN 861-3398.

J. A. CRABBE
Chief of Staff

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SUMMARY OF CHANGES

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T-45 COMBINED FLIGHT TRAINING CURRICULUM

COURSE DATA

1. Course Title. T-45 Combined Flight Training Curriculum.

2. Course Identification Number

	T-45A	T-45C
Intermediate Jet	Q-2A-0198	Q-2A-0196
Advanced Strike	Q-2A-0199	Q-2A-0197
Intermediate E2/C2	Q-2A-0195	Q-2A-0192

3. Location(s)/Course Data Processing (CDP) Codes

Naval Air Station (NAS) Meridian, Mississippi:

	VT-7	VT-9
T-45C Intermediate Jet	04BK	04BL
T-45C Advanced Strike	04BP	04BR
T-45C Intermediate E2C2	03Y7	03Y8

Naval Air Station (NAS) Kingsville, Texas:

	VT-21	VT-22
T-45A Intermediate Jet	04BV	04BW
T-45A Advanced Strike	04BX	04BY
T-45A Intermediate E2C2	04BJ	04BU
T-45C Intermediate Jet	04BM	04BN
T-45C Advanced Strike	04BS	04BT
T-45C Intermediate E2C2	03Y9	03YA

4. Course Status. Revised, implement on receipt.

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

6. Prerequisite Training. Intermediate Jet: Successful completion of USN Primary Flight Training Q-2A-0108 or USAF Primary Flight Training Q-2B-0081, and Centrifuge-Based Flight Environment Training (CFET).

Advanced Strike/Intermediate E2/C2: Successful completion of the Intermediate Jet phase of this instruction, or phase one of either T-45A Total System (TS) Strike Flight Training Q-2A-0007 or T-45C Digital Total System (TS) Strike Flight Training Q-2A-0024.

7. Personnel Eligibility. Officers assigned by the Chief of Naval Personnel as recommended by the Chief of Naval Air Training.

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

9. Security Clearance Required. None.

10. NOBC/NEC Earned. None.

11. Obligated Service. Refer to MILPERSMAN, Article 661036.

12. Follow-on Training. Designated Fleet Replacement Squadron.

13. Course Length. (Optimum)

	Intermediate Jet	Advanced Strike	Intermediate E2/C2
Training days:	126.01	104.51	29.66
Calendar days:	195.72	162.32	46.07
Calendar weeks:	27.96	23.19	6.58

14. Class Capacity. Variable.

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

16. Course Curriculum Model Manager (CCMM). Commander, Training Air Wing TWO (COMTRAWING TWO) is overall T-45 Model Manager.

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

18. Quota Control. Chief of Naval Operations.

19. Primary Instructional Methods. Building block approach to developing and reinforcing prerequisite airmanship skills through a steady increase in mission task loading. Central to the approach is an optimum mix of classroom, simulator, and flight instruction.

20. Preceding Curriculum Data. This curriculum replaces CNATRAINST 1542.125B and CNATRAINST 1542.135B.

21. Student Performance Measurement. As published in CNATRAINST 1500.4G.

22. Application of Standards to the Measurement of Student Performance. Procedural knowledge and application must be in accordance with applicable directives and manuals. Final judgment regarding the satisfactory performance of any item or maneuver rests with the instructor pilot who is capable of assessing the environmental and systems factors affecting the conditions under which the performance is measured.

23. Structure. The T-45 Combined Flight Training Curriculum encompasses three phases: Intermediate Jet, Advanced Strike, and Intermediate E2/C2.

a. Intermediate Jet contains the following stages:

Aviation Student Indoctrination	ASI
Engineering	ENG
Aerodynamics	AERO
Meteorology	METRO
Instrument Navigation	INAV
Course Rules	CR
Aircrew Coordination Training	ACT
Operational Risk Management	ORM
NACES Flight Physiology	SEAT
Small Arms Qualifications	ARMS
Cockpit Orientation	CO
Emergency Procedures	EP
Basic Instruments	BI
Radio Instruments	RI
Familiarization	FAM
Out-of-Control Flight	OCF

NATOPS	NATOPS
Airways Navigation	AN
Formation	FORM
Night Familiarization	NFAM
Instrument Rating	IR
Field Carrier Landing Practice	FCLP

b. Advanced Strike contains the following stages:

Airways Navigation	AN
Operational Navigation	ON
Weapons	WEP
Tactical Formation	TACF
Night Formation	NFORM
Emergency Procedures	EP
Out-of-Control Flight	OCF
Air Combat Maneuvering	ACM
Carrier Qualification	CQ

c. Intermediate E2/C2 contains the following stages:

E2/C2 Transition	FAM, NFAM, FORM
Carrier Qualification	CQ
Emergency Procedures	EP

GLOSSARY

Definitions. The following is a list of abbreviations and acronyms used in the curriculum:

a.	ACP	-	Armament Control Panel
b.	ADC	-	Air Data Computer
c.	ADI	-	Attitude Director Indicator
d.	AGL	-	Above Ground Level
e.	AOA	-	Angle of Attack
f.	ASR	-	Airport Surveillance Radar
g.	ATC	-	Air Traffic Control
h.	BVR	-	Beyond Visual Range
i.	CAI	-	Computer-Assisted Instruction
j.	CCIP	-	Continuously Computed Impact Point
k.	CDI	-	Course Deviation Indicator
l.	CEP	-	Circular Error Probability
m.	CNI	-	Communication, Navigation, and Identification
n.	CONTR AUG	-	Control Augmentation
o.	CQ	-	Carrier Qualification
p.	CV	-	Carrier
q.	CWS	-	Centralized Warning System
r.	DACM	-	Defensive Air Combat Maneuver
s.	DEU	-	Display Electronics Unit
t.	DF	-	Direction Finder
u.	DME	-	Distance Measuring Equipment
v.	DR	-	Dead Reckoning

w.	ECA	-	Engine Control Amplifier
x.	ECS	-	Environment Control System
y.	EDP	-	Engine-Driven Pump
z.	ETA	-	Estimated Time of Arrival
aa.	FC	-	Front Cockpit - Fly in front cockpit with a qualified flight instructor onboard providing instruction, assistance, or supervision.
ab.	FCLP	-	Field Carrier Landing Practice
ac.	FLOLS	-	Fresnel Lens Optical Landing System
ad.	FP	-	Flight Procedures
ae.	FTI	-	Flight Training Instruction
af.	GCA	-	Ground-Controlled Approach
ag.	GINA	-	GPS/Inertial Navigation Assembly
ah.	GLOC	-	“G” Induced Loss of Consciousness
ai.	GPS	-	Global Positioning System
aj.	GTS	-	Gas Turbine Starter
ak.	H	-	Hooded
al.	HSI	-	Horizontal Situation Indicator
am.	HUD	-	Head-Up Display
an.	HYD	-	Hydraulics
ao.	IFF	-	Identification Friend or Foe
ap.	IFLOLS	-	Improved FLOLS
aq.	IFR	-	Instrument Flight Rules
ar.	IFT	-	Instrument Flight Trainer (2F137 – nonvisual)
as.	ILS	-	Instrument Landing System

at.	IMC	-	Instrument Meteorological Conditions
au.	IP	-	Instructor Pilot
av.	IROK	-	Inspect/Inflate, Release, Options, Koch Fittings
aw.	ITO	-	Instrument Takeoff
ax.	LAB	-	Laboratory/Practical Problem
ay.	LECT	-	Lecture
az.	LOC	-	Localizer
ba.	LP	-	Low Pressure
bb.	LSO	-	Landing Signal Officer
bc.	MFD	-	Multi-Function Display
bd.	MIL	-	Mediated Interactive Lecture
be.	NACES	-	Navy Aircrew Common Ejection Seat
bf.	NATOPS	-	Naval Air Training and Operating Procedures Standardization
bg.	NAVAIDS	-	Navigational Aids
bh.	NGS	-	Naval Guidance System
bi.	NIFM	-	NATOPS Instrument Flight Manual
bj.	NORDO	-	No Radio
bk.	NWS	-	Nose Wheel Steering
bl.	OBOGS	-	On-Board Oxygen Generating System
bm.	OFT	-	Operational Flight Trainer (2F138 - visual)
bn.	OLS	-	Optical Landing System
bo.	OPAREA	-	Operations Area
bp.	OPLAN	-	Operations Plan
bq.	OPS	-	Operations

br.	PA	-	Precautionary Approach
bs.	PAR	-	Precision Approach Radar
bt.	PENCIL	-	Non-CAI Administered Examination
bu.	PP	-	Partial Panel
bv.	QOD	-	Question of the Day
bw.	RAT	-	Ram Air Turbine
bx.	RC	-	Rear Cockpit - Fly in rear cockpit with a qualified flight instructor onboard providing instruction, assistance, or supervision.
by.	RECCE	-	Reconnaissance
bz.	ROE	-	Rules of Engagement
ca.	RTB	-	Return to Base
cb.	RVSM	-	Reduced Vertical Separation Minimums
cc.	SAHRS	-	Standard Attitude Heading Reference System
cd.	SAR	-	Search and Rescue
ce.	S/B	-	Speed Brakes
cf.	SID	-	Standard Instrument Departure
cg.	SIF	-	Selected Identification Features
ch.	Simo	-	Simultaneous Tracking
ci.	SNA	-	Student Naval Aviator
cj.	Solo	-	Fly without a qualified flight instructor.
ck.	SRT	-	Standard Rate Turn
cl.	STAR	-	Standard Terminal Arrival
cm.	T&G	-	Touch-and-Go
cn.	TACAN	-	Tactical Air Navigation

co.	TS	-	Total System
cp.	UHF	-	Ultra High Frequency
cq.	VASI	-	Visual Approach Slope Indicator
cr.	VFQ	-	Visual Forward-Quarter
cs.	VFR	-	Visual Flight Rules
ct.	VHF	-	Very High Frequency
cu.	VID	-	Visual Identification
cv.	VMC	-	Visual Meteorological Conditions
cw.	VOR	-	VHF Omnidirectional Range
cx.	WKBK	-	Workbook
cy.	Wx	-	Weather
cz.	X	-	Check flight, simulator check event, or examination lesson

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CURRICULUM GUIDELINES

1. Sequencing. The T-45 Combined Flight Training Curriculum is comprised of three training phases: Intermediate Jet, Advanced Strike, and Intermediate E2/C2. All students enrolled in the curriculum will execute the Intermediate Jet phase followed by either the Advanced Strike phase or the Intermediate E2/C2 phase, depending on selection results. Each phase is sequenced in distinct modules which integrate academic instruction, flight support lectures, and simulator and aircraft instruction. Flight support lectures should be scheduled a minimum of one day prior to the first simulator or flight event in the stage supported by the flight support lecture. SNAs will be scheduled for the first simulator/flight in stage within two weeks of receiving the initial flight support lecture for that stage. After two weeks, SNAs will be given a refresher lecture. After the refresher lecture, SNAs may be scheduled for the first simulator/flight event the same day. Intermediate Jet modules must be flown in order except as specified below. Advanced Strike students will not fly in more than one of the following stages at a time: WEAPONS, ACM, or CQ. The general sequencing guidelines are as follows:

a. Device and Flight Sequencing Guidelines

Intermediate Jet

MOD 00:
- ASI lessons may be sequenced in any order.

MOD 01:
- ENG/AERO/METRO/INAV stages are done first but stages may be sequenced in any order.
- ARMS-01 may be completed at any time prior to completion of Advanced Strike or Intermediate E2/C2 training.
- ASI-07 must be completed prior to any syllabus or practice simulator.

MOD 02:
- FAM-20 may be flown any time after FAM-19 and prior to FCLP-02.

MOD 03:
- AN-01S and AN-02S may be flown after completion of FAM-13.

MOD 04:
- FCLP-02 may be flown up to two weeks prior to FCLP-03X.

Advanced Strike

MOD 05/06:
- TACF-07 and WEP-10X must be completed prior to ON-09.
- Students must have 24 hours notice prior to each previously unplanned ONAV event for preflight planning.

MOD 07:
- ACM-01 must be flown after TACF-07. OCF-04X must be flown prior to ACM-01.
- OCF-04X may be flown up to two weeks prior to ACM-01.

MOD 08:
- Modules 05, and 06, with the exception of ON-09 through ON-14 and AN-19, must be complete prior to Module 08.
- NFORM-05 may be flown up to two weeks prior to CQ-08.

Intermediate EC/C2

MOD 09:
- Module 09 shall be completed prior to Module 10.

MOD 10:
- None. For specific guidelines, see Module 10.

b. Academic and Flight Support Sequencing Guidelines. All stage flight procedures lectures and examinations shall be successfully completed prior to the first flight or simulator in that stage with the following exceptions:

EMFP-01 through EMFP-06X	-Prior to EP-01S
EMFP-07 through EMFP-11X	-Prior to EP-03S
NATOPS-01 through NATOPS-03X	-Prior to FAM-18X
FFP-01 through FFP-06X	-Prior to FORM-01S
FFP-07 through FFP-08X	-Prior to FORM-21
IRFP-01 through IRFP-04X	-Prior to IR-07X
CQFP-01 through CQFP-03X	-Prior to FCLP-01S
ONAV-01 through ONAV-06X	-Prior to ONFP-01
ONFP-01 through ONFP-05X	-Prior to ON-01S
ONFP-06 through ONFP-07X	-Prior to ON-09
ACMFP-01 through ACMFP-05X	-Prior to ACM-01, After TACF-01

ACMFP-06 through ACMFP-07X	-Prior to ACM-11, After ACM-05X
CQFP-04	-Prior to CQ-01S
CQFP-05 through CQFP-06X	-Prior to CQ-15X
CQFP-07	-Prior to CQ-16S
CQFP-08 through CQFP-09X	-Prior to CQ-32X

2. Briefing and Debriefing. Adequate briefing time shall be provided and utilized. The applicable items listed in the NATOPS Pilot's Pocket Checklist and Briefing Guides must be briefed. For multiplane flights, the flight leader will brief all flight members, i.e., instructors, observers, students, passengers, etc., in the briefing area. Although students may be briefed early on fundamental techniques, all members of the flight will be in attendance for the final "conduct of flight" portion of the brief.

a. Briefing. The minimum items that must be briefed with all members of the flight present are as follows:

(1) Weather.

(2) Sequence of events.

(3) Communications plan.

(4) Flight breakup and rendezvous instructions, including break interval at home field.

(5) Lead changes.

(6) Exceptions, omissions, additions, and substitutions to maneuvers and procedures described in the FTI and the briefing guide for the specific curriculum flight.

(7) NORDO procedures.

(8) Applicable emergency procedures.

b. Debriefing. Timely debriefing of each simulator and flight event is an essential part of the learning process. All flight members will present for the debrief. The minimum items that shall be covered in the debrief are:

(1) Overall review of the event plan in chronological order citing completion, omissions, and deletions of prerequisite exercises.

(2) Accomplishment of learning objectives.

(3) Specific comments on above average (AA), below average (BA), and unsatisfactory (UNSAT) performance. Discussion should focus on causes, as well as effects of performance.

c. Designated Flight Leader. For all multiplane flights involving two or more flight instructors, the designated flight leader will be responsible for compliance with OPNAVINST 3710.7T and with the provisions of the paragraphs above. In all appropriate cases, the designated instructor shall retain the formation leader status as defined by OPNAVINST 3710.7T, paragraphs 3.5.2 and 3.5.4.

d. Aerobatic Maneuvers. Aerobatic maneuvers shall be conducted in accordance with OPNAVINST 3710.7T.

3. Schedule Limitations

a. The schedule limitations of the student's workday/workweek are:

(1) The student's working day from first scheduled event until completion of the last event of the day (including associated paperwork and debrief) shall not exceed 12 hours.

(2) 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 event of the following day.

(3) Workweek may be up to six days. After six consecutive workdays, students must have one day off. TRAWING Commanders shall submit waivers to deviate from this policy to CNATRA (N7).

b. Front seat landings: Intermediate Jet/Intermediate E2/C2 - A day front seat landing is required within the previous two days for the first solo flight, thereafter a front seat landing within three days for a day solo. A day/night front seat landing is required within the previous day for a night solo. Advanced Strike - A day/night front seat landing is required within five days prior to day solo flight and within three days prior to a night solo flight.

c. All night flights shall take off no earlier than 30 minutes past official sunset.

d. A student shall not be scheduled for more than two flight/simulator events per day, not to include ground events that do not exceed crew day established in paragraph 3a(1) and (2), except:

(1) Three (3) dual cross-country legs (except BI/RI).

(2) Three (3) CQ/FCLP events.

Flights exceeding the above limitations require written approval of the training air wing (TRAWING) commander in accordance with CNATRAINST 1500.4G.

e. SNAs shall not be scheduled for FP and first flight/ simulator in stage on the same day.

f. Two out-and-in flights (outside the local area) are required in the AN/IR syllabus prior to IR-07X. A cross-country with at least four legs may be substituted for this requirement.

g. The following minimums are required for T-45 student pilots:

Intermediate Jet

(1) 14.0 hours of night time.

(2) 11.0 hours of solo time.

(3) 83.7 hours of flight time prior to completion.

Advanced Strike

(1) 10.0 hours of night time.

(2) 29.0 hours of solo time.

(3) 78.4 hours of flight time prior to completion.

(4) CQ - 10 carrier-arrested landings and 4 touch-and-goes.

Intermediate E2/C2

(1) 18.0 hours of flight time prior to completion.

(2) CQ - 10 carrier-arrested landings and 4 touch-and-goes.

h. Small arms qualification (ARMS-01) can be waived at the discretion of the TRAWING COMMANDER.

4. Flight Standardization. All simulator and flight events outlined herein shall be conducted in accordance with the current CNATRA FTIs and the T-45 NATOPS manuals. Standardization evaluation of T-45 academic, simulator, and flight instructors may be executed by standardization instructors from a squadron other than that of the evaluatee.

5. Solo Restrictions. Solo students are specifically prohibited from intentionally performing spins, accelerated stalls, unusual attitudes, approach turn stalls, and vertical recoveries. Night solo flights require an operating radar altimeter.

6. Administration

a. Aviation Training Forms (ATFs)

(1) A CNATRA ATF will be completed for each curriculum flight or simulator event. All items graded unsatisfactory, below average, or above average shall be commented on in the remarks section.

(2) ATFs shall be completed the same day the event was conducted.

(3) Flights requiring dual touch-and-go landings shall include remarks on landing performance using notation format listed in the LSO NATOPS.

(4) Curriculum flights flown single-aircraft solo will be graded for headwork only, unless circumstances dictate assignment of other grades.

(5) Instructors omitting items from a flight called for in the curriculum shall note the reason for the omission in the remarks section and make the appropriate notation in the grade column (per paragraph 13, i.e., DND, NA...).

(6) Check flights will be noted as such on the student's ATF.

(7) On multiplane flights, items completed, but unobserved, shall not be graded by the flight leader.

(8) FCLP ATFs shall be completed as follows: FCLP-01S and 02 are graded normally; FCLP-03X is a non-graded flight **EXCEPT** for HEADWORK, PROCEDURES and BASIC AIRWORK; FCLP-04 through FCLP-09X are graded on one ATF.

(9) Advanced Strike CQ ATFs shall be completed as follows: CQ-01S, CQ-02S and CQ-03X are graded normally; CQ-04 through CQ-14X are graded on one ATF and CQ-15X is graded

normally. CQ-15X will count as 50% of the CQ stage grade, CQ-03X through CQ-14X will count as 37.5% of the CQ stage grade and CQ-01S and CQ-02S will count as 12.5% of the CQ stage grade.

(10) Intermediate E2/C2 CQ ATFs shall be completed as follows: CQ-16S, CQ-17S and CQ-18X are graded normally, CQ-19 through CQ-31X are graded on one ATF and CQ-32X is graded normally. CQ-32X will count as 50% of the CQ stage grade, CQ-18X through CQ-31X will count as 37.5% of the CQ stage grade, and CQ-16S and CQ-17S will count as 12.5% of the CQ stage grade.

b. Warmup Criteria. Warmup flights may be given as necessary to regain flight proficiency after prolonged delays in training. The following specific guidelines govern the administration of warmup flights:

(1) One warmup event may be awarded (IAW paragraph b(2) below) when there has been a delay of six calendar days since the last event in a particular stage. During FCLP/CQ phase, a warmup FCLP shall be conducted prior to FCLP/CQ periods if three days have elapsed since the last FCLP period. CQ FCLP warmup may be solo as determined by the LSO.

(2) If the next regularly scheduled curriculum event is a dual flight, then the event is briefed and flown as that flight. If the student's proficiency after the delay in training is consistent with his normal progress and warrants continuation in the module of instruction, the flight shall be considered and graded as a normal curriculum flight (complete). If the student does not show normal progress, the flight shall be considered a warmup of the last flight event completed. If the next regularly scheduled curriculum event is solo, the student shall be awarded a warmup of the last completed dual event.

(3) Instrument warmups shall be conducted in the aircraft if the student's next event is an aircraft event and in the simulator if the student's next event is a simulator event.

(4) All warmup flights (between stages, modules, or other circumstances) are flown as the event deemed most consistent with the procedures and maneuvers needing review.

(5) For delays greater than or equal to 14 days refer to CNATRAINST 1500.4G.

Optional warmup: 6-13 days.
Mandatory warmup: Greater than or equal to 14 days.

c. Training Documentation

(1) Check flights will be noted as such on the student's ATF.

(2) Extra time flight and simulator instruction shall be governed by the limits prescribed in CNATRAINST 1500.4G.

(3) Instrument Rating. Students will receive the training in instrument flight necessary to qualify for a Standard Instrument Rating in accordance with OPNAVINST 3710.7T. The expiration date of the instrument rating/qualification will be the last day of the month the evaluation was completed plus one year.

d. Aviation Training Jacket (ATJ) Reviews. Jacket reviews are required prior to each check flight.

e. Instructor Assignment (Designations)

(1) Each student will have a primary and secondary flight instructor designated prior to FAM-08. No more than two off-wing instructor events will be flown prior to FAM solo flight.

(2) FAM-18X shall not be flown with primary or secondary instructors.

7. Waiving Events. The flights and simulator events listed in this curriculum are the minimum to be completed by each student. If a student successfully completes all syllabus flights in a phase of training and has less than the minimum required flight hours for that phase, the following rules apply:

a. Students who complete a phase of training with an NSS of 50 or greater may have total flight time requirements waived at the discretion of the Trawing Commander. The waiver shall be recorded on a supplemental ATF in the student's training jacket.

b. Students who finish a phase of training with less than a 50 NSS shall be awarded warmup or extra time events in order to meet total flight time requirements.

c. Solo flight time minimum requirements may be waived at the discretion of the Trawing Commander. This waiver shall be recorded on a supplemental ATF in the student's training jacket.

d. Night flight time minimum requirements are not waiverable.

Commanding Officers are authorized to award warmup or extra time events in order to meet these requirements. Flights should be flown as the event deemed most consistent with the stage requiring additional training. Flight or simulator events may not be waived unless authorized in this curriculum or authorized in writing by CNATRA (N7).

8. Incomplete Flights. Incomplete events may be completed during the following event if time and fuel are available. On a flight completing a previously incomplete event, only the omitted items should be performed and graded. HEADWORK, BASIC AIRWORK, and PROCEDURES shall be graded only on the flight comprising the majority of the event, unless circumstances dictate otherwise.

9. Weather/Safety Pilots (Shotgunning)

a. Shotgunning of any flight **must** have prior approval from the commanding officer.

b. Weather safety pilots may not be used on a routine basis for reasons other than adverse weather.

c. All weather safety pilots shall be designated instructors and have at least two IUT flights in stage to shotgun a solo flight.

d. The weather safety pilot may award an unsatisfactory grade for the flight only for the reasons specified in CNATRAINST 1500.4G.

e. Shotgunning of solo flights for other than adverse weather must have prior approval from the TRAWING commander.

f. The following flights will not be shotgunned for any reason: FAM-19, FCLP-09X, CQ-14X, and CQ-15X.

10. Emergency Procedures. Emergency procedures and malfunctions must be learned in such a manner as to build the student's confidence and establish safe aircraft operating proficiency. These procedures will be introduced during academics/flight support events and will then be reviewed and evaluated in the simulator and/or aircraft as appropriate.

a. During each simulator event, the "Emergency of the Day" shall be exercised.

b. A satisfactory level of performance in all critical emergency procedures is required prior to the first solo and reviewed regularly thereafter.

c. All NATOPS examinations will be satisfactorily completed prior to FAM-18X.

d. The student shall successfully complete an oral emergency examination during the FAM-18X "safe for solo" brief. The result of the oral examination shall be entered in the Remarks section of the ATF.

e. In order to maintain familiarity with emergency procedures after completion of the pre-solo phase, the student shall be graded on appropriate emergency procedures (simulated or verbalized) on all flight events.

11. Weather Minimums

STAGE	FLIGHT	DUAL	SOLO	REMARKS
FAM	ALL	VFR	1500/3	Max of three flights VFR on top. Notes (1) and (5)
NFAM	ALL	Local VFR	1500/3	Note (2)
OCF	03X	VFR	------	ACM weather requirements (Max cloud tops 5000-ft AGL).
BI	ALL	OPNAV minima	-------	
RI/IR	ALL	OPNAV minima	-------	
AN	ALL	OPNAV minima	1000/3	
FORM	ALL	OPNAV minima	1000/3	Notes (1) and (4)
NFORM	ALL	OPNAV minima	1500/3	
FCLP	02–09X	Local VFR	Local VFR	Notes (1) and (3)
ON	04-08X	OPNAV minima	-------	3000/5 on route
	09		-------	5000/5 on route
	10-12		1000/3	8000/5 on route
	13-14		-------	3000/5 on route

STAGE	FLIGHT	DUAL	SOLO	REMARKS
WEP	ALL	OPNAV minima	1000/3	10500/5 30-degree pattern 8500/5 20-degree pattern 5000/5 10-degree pattern Notes (1) and (3)
TACF	ALL	OPNAV minima	1000/3	OPNAV 3710.7T Wx mins for high work. Notes (1) and (3)
ACM	ALL	OPNAV minima	1000/3	Engagement Wx directed by CNATRA Training Rules. Notes (1) and (3)
CQ	18X-31X	------	Local VFR	
	32X	------	1000/3	Wx as outlined in CARQUAL OPLAN

NOTES:

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

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

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

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

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

(6) At least two events from FORM-05 through FORM-09 and one event from FORM-21 to FORM-24X shall require local weather adequate for takeoff running rendezvous and formation break at the field.

(7) FAM-18X shall be flown with visual reference to the ground.

12. Flight/Simulator Interchangeability. Flight and simulator events may not be interchanged without approval of the Chief of Naval Air Training.

13. Definitions. The following terms and symbols found in the curriculum will be applied to flight instruction as defined below:

a. Discuss

Instructor: Quiz the student on the applicable procedures, systems, or maneuvers.

Student: Responsible for knowledge of the procedures prior to the event brief.

Item: Graded with an "X" by the instructor in the grade columns on the Aviation Training Form/Instructor Training Form (ATF), labeled "D" in the "ID" column. If this is not available on the ATF, they should be graded in the most appropriate area (e.g., HW, PROC, or BAW).

b. Brief

Instructor: Brief the student on the applicable procedures.

Student: Responsible for knowledge of the procedures prior to the event brief.

Item: Not graded, but marked with "BRF" by the instructor in the grade columns on the ATF, labeled "B" in the "ID" column.

c. Demonstrate

Instructor: Perform the maneuver with precision and accompanying description.

Student: Responsible for knowledge of the procedures prior to the event brief and observes the maneuver.

Item: Not graded, but marked with "DEMO" by the instructor in the grade columns on the ATF, labeled "D" in the "ID" column.

d. Introduce

Instructor: Coaches the student through the maneuver as necessary, and/or may redemonstrate the maneuver.

Student: Responsible for knowledge of the procedures prior to the event brief and performs the maneuver with coaching as necessary.

Item: Graded with an "X" by the instructor in the grade columns on the ATF, labeled "I" in the "ID" column.

e. Practice

Instructor: Observe the student with minimal coaching; may also demonstrate the maneuver if necessary.

Student: Must perform the maneuver with minimal coaching.

Item: Graded with an "X" by the instructor in the grade columns on the ATF, labeled "P" in the "ID" column.

f. Review

Instructor: Observe and grade the maneuver without coaching; airborne critique is encouraged.

Student: Expected to perform the maneuver without coaching and devoid of procedural errors. The level of performance must warrant progression to the next stage or phase of training.

Item: Graded with an "X" by the instructor in the grade columns on the ATF, labeled "R" in the "ID" column.

g. Nongraded

Instructor: Observe maneuver; item will be graded only if performed above average, below average, or unsatisfactory.

Student: Expected to perform the maneuver without coaching and devoid of procedural errors. The level of performance must warrant progression to the next stage or phase of training.

Item: Not graded, but marked with "NG" by the instructor in the grade columns on the ATF, labeled "NG" in the "ID" column, if the student's performance is average. Graded with an "X" in the appropriate grade column if the student's performance for that maneuver was other than average.

h. Did Not Do

Instructor: A required item on the ATF, which was not done or completed for various reasons (i.e., weather, aircraft malfunctions, etc.).

Student: Maintain and present a copy of the ATF to the instructor of the next like event so the next instructor is clear about all previously graded DND/PGI item(s).

Item: Not graded, but marked with "DND" by the instructor in the grade columns on the ATF. If the event is incomplete, an associated remark is required. One incomplete item constitutes an incomplete event. Every item previously marked "DND" shall be either graded appropriately, or marked "DND" if incomplete again.

i. Not Applicable

Not graded, but marked with "NA" by the instructor in the grade columns on the ATF. This is used ONLY for items in the following categories LABELED on the ATF as: (Optional), (Fuel permitting), (If done), or their equivalent.

j. Previously Graded Item

Instructor: A maneuver previously graded on an incomplete event. The item may be flown on the next attempt at that event if fuel/time permits or if required in order to accomplish the previously "DND" item(s) (e.g., Ground Procedures, Taxi, Takeoff, etc.). If the student's performance is anything other than average on any previously graded item, it shall be graded again.

Student: If required, perform the maneuver again; expected to do so at the level shown in the "ID" column.

Item: Not graded, but marked with "PGI" by the instructor on the ATF in the appropriate grade column if the student's performance for that item was average or if it was not performed again. Graded with an "X" by the instructor on the ATF in the appropriate grade columns if the student's performance for that item was other than average.

k. Not Observed

Instructor: Normally used for student solo events. Instructor (ODO/FDO/RDO/SODO) shall brief the student thoroughly to ensure preparedness.

Student: Expected to perform the maneuver as briefed to the skill level stipulated in the review description above.

Item: Not graded, but marked with "NOB" by the ODO/FDO/RDO/SODO on the ATF. Graded with an "X" in the appropriate grade columns as observed by a qualified instructor (i.e., ODO, FDO, RDO, SODO, Section/Division Leader, etc.), if the student's performance for that maneuver was other than average.

l. "S"-Coded Flights

Student instructional flights designated by the "S" (e.g., BI-01S) are flown in the flight simulator.

14. Performance Measurement. Flight performance criteria are delineated as standards of performance in the Terminal and Enabling Objectives outlined in Appendix A. Academic and flight support unit criterion tests will be administered, graded, and recorded in accordance with procedures outlined in CNATRAINST 1500.4G. Acceptable standards are also provided in that instruction.

15. Academic/Flight Support

a. Academic Training. Academic training shall be accomplished in accordance with the sequencing guidelines. Criterion tests and end of course tests will be administered, graded, and recorded in accordance with the procedures outlined in CNATRAINST 1500.4G. Acceptable standards are also given in that instruction.

b. Flight Procedures Examinations. Prior to the first simulator or aircraft event in each stage, and prior to designated curriculum events FAM-18X, IR-07X, FORM-21, ON-09, ACM-11, CQ-15X and CQ-32X, each student shall successfully complete the flight procedures, NATOPS, or instrument examination covering the appropriate stage.

16. Drop on Request (DOR) Policy. All NATRACOM courses are voluntary. Accordingly, students have the option to individually request termination of training. Any time the student makes a statement such as "I quit" or "DOR," the student shall be immediately removed from the training environment and referred to the operations or training officer for administrative action.

17. Training Time Out Policy. Any time a student or instructor has apprehension concerning his personal safety or that of another, he shall signal for a "Training Time Out" to clarify the situation and receive or provide additional instruction. "Training Time Out" signals other than verbal shall be appropriate to the training environment and clearly briefed.

18. Landing Per Stage. The following is the recommended minimum number of landings per stage, with corresponding recommended average landings per sortie. A flight should not be incomplete if a student does not meet the recommended average landings per sortie for a given event. Commanding Officers are authorized to schedule warmup flights in order to meet recommended stage minimums, if student performance so warrants. However, students

are required to have 180 landings minimum prior to FCLP-03X, 320 landings minimum prior to CQ-04 for advanced strike students or 270 landings minimum prior to CQ-19 for E2/C2 students. Landings are defined as full flap, left-hand pattern (FCLP-type).

STAGE	RECOMMENDED LANDINGS PER STAGE AND SORTIE
FAM	85 - min 6/sortie, 10 for pattern sortie, 5/check ride
2P FORM	68 - min 5/basic form, 3/cruise form
4P FORM	10 - min 2/sortie
NFAM	24 - min 6/sortie
FCLP	56 - min 7/sortie
1P ON	10 - min 2/sortie
WEPS	20 - min 2/sortie
TACF	14 - min 2/sortie
NFORM	17 - min 4/sortie, 5 on solo
2P ON	12 - min 2/sortie
2P ACM	20 - min 2/sortie
3P ACM	10 - min 2/sortie

SECTION I

TRAINING SUMMARY

1. Training Hour Summary

FLIGHT TRAINING

a. Intermediate Jet

STAGE	SOLO FLIGHTS	SOLO HOURS	DUAL FLIGHTS	DUAL HOURS	TOTAL FLIGHTS	TOTAL HOURS
FAM	1	1.2	12	14.4	13	15.6
OCF	0	0.0	1	0.8	1	0.8
BI	0	0.0	3	4.5	3	4.5
RI	0	0.0	6	9.7	6	9.7
AN	0	0.0	5	8.1	5	8.1
FORM	4	5.5	17	25.1	21	30.6
NFAM	1	1.3	2	3.0	3	4.3
IR	0	0.0	3	5.1	3	5.1
FCLP-CQI	6	3.6	2	1.4	8	5.0
TOTALS	12	11.6	51	72.1	63	83.7

b. Advanced Strike

STAGE	SOLO FLIGHTS	SOLO HOURS	DUAL FLIGHTS	DUAL HOURS	TOTAL FLIGHTS	TOTAL HOURS
ON	1	1.2	10	12.5	11	13.7
WEP	4	4.4	6	6.8	10	11.2
AN	3	4.4	4	5.9	7	10.3
TACF	1	1.2	6	7.4	7	8.6
NFORM	1	1.3	3	4.3	4	5.6
OCF	0	0.0	1	1.2	1	1.2
ACM	6	6.6	9	9.9	15	16.5
CQ	12	10.8	1	0.5	13	11.3
TOTALS	28	29.9	40	48.5	68	78.4

c. Intermediate E2/C2

STAGE	SOLO FLIGHTS	SOLO HOURS	DUAL FLIGHTS	DUAL HOURS	TOTAL FLIGHTS	TOTAL HOURS
FAM	0	0.0	2	1.4	2	1.4
NFAM	0	0.0	1	0.8	1	0.8
FORM	0	0.0	2	3.0	2	3.0
CQ	14	12.0	1	0.8	15	12.8
TOTALS	14	12.0	6	6.0	20	18.0

SIMULATOR TRAINING

a. Intermediate Jet

STAGE	IFT EVENTS	IFT HOURS	OFT EVENTS	OFT HOURS	TOTAL EVENTS	TOTAL HOURS
CO	1	1.5	1	1.5	2	3.0
FAM	0	0.0	7	10.5	7	10.5
OCF	0	0.0	1	1.5	1	1.5
EP	4	5.2	5	6.9	9	12.1
BI	11	14.9	0	0.0	11	14.9
RI	3	4.5	5	7.5	8	12.0
AN	2	3.0	4	6.0	6	9.0
FORM	0	0.0	4	6.0	4	6.0
NFAM	0	0.0	1	1.5	1	1.5
IR	1	1.5	3	4.5	4	6.0
FCLP	0	0.0	1	1.3	1	1.3
TOTALS	22	30.6	32	47.2	54	77.8

b. Advanced Strike

STAGE	IFT EVENTS	IFT HOURS	OFT EVENTS	OFT HOURS	TOTAL EVENTS	TOTAL HOURS
AN	0	0.0	2	3.0	2	3.0
ON	0	0.0	3	4.1	3	4.1
WEP	0	0.0	6	6.6	6	6.6
EP	0	0.0	3	3.7	3	3.7
NFORM	0	0.0	1	1.5	1	1.5
OCF	0	0.0	1	1.0	1	1.0
CQ	0	0.0	2	2.8	2	2.8
TOTALS	0	0.0	18	22.7	18	22.7

c. Intermediate E2/C2

STAGE	IFT EVENTS	IFT HOURS	OFT EVENTS	OFT HOURS	TOTAL EVENTS	TOTAL HOURS
EP	0	0.0	1	1.5	1	1.5
CQ	0	0.0	2	2.8	2	2.8
TOTALS	0	0.0	3	4.3	3	4.3

FLIGHT SUPPORT TRAINING HOURS

a. Intermediate Jet

SUBJECT	SYMBOL	T-45A PERIOD	T-45C PERIOD	T-45A HOURS	T-45C HOURS
Course Rules	CR	3	3	3.5	3.5
NACES	SEAT	1	1	2.0	2.0
Small Arms Qualification	ARMS	1	1	3.0	3.0
Aircrew Coordination Training	ACT	1	1	3.0	3.0
Operational Risk Management	ORM	1	1	1.0	1.0
Cockpit Orientation	CO	3	8	3.1	8.3
Emergency Procedures	EMFP	8	11	10.0	14.5
Basic Instruments	BIFP	10	10	10.5	10.5
Radio Instruments	RIFP	4	5	5.0	5.5
Familiarization	FAMFP	3	3	7.7	7.7
Out-of-Control Flight	OCFFP	2	2	2.0	2.0
NATOPS	NATOPS	3	3	6.0	6.0
Airways Navigation	ANFP	2	2	5.0	5.0
Formation	FFP	8	8	8.0	8.0
Night Familiarization	NFAMFP	3	3	3.5	3.5
Instrument Rating	IRFP	4	4	5.0	5.0
Carrier Qualification I	CQFP	3	3	2.5	2.5
TOTALS		60	69	80.8	91.0

b. Advanced Strike

SUBJECT	SYMBOL	T-45A PERIOD	T-45C PERIOD	T-45A HOURS	T-45C HOURS
Operational Navigation I	ONFP I	4	3	4.4	3.7
Weapons	WEPFP	5	5	4.7	4.7
Tactical Formation	TFFP	4	4	4.7	4.7
Night Formation	NFFP	2	2	2.2	2.2
Operational Navigation II	ONFP II	2	2	1.4	1.4
Air Combat Maneuvering	ACMFP	7	7	8.3	8.3
Carrier Qualification II	CQFP	3	3	5.0	5.0
TOTALS		27	26	30.7	30.0

c. Intermediate E2/C2

SUBJECT	SYMBOL	T-45A PERIOD	T-45C PERIOD	T-45A HOURS	T-45C HOURS
Carrier Qualification	CQFP	3	3	5.0	5.0
TOTALS		3	3	5.0	5.0

ACADEMICS

a. Intermediate Jet

SUBJECT	SYMBOL	T-45A PERIOD	T-45C PERIOD	T-45A HOURS	T-45C HOURS
Aviation Student Indoctrination	ASI	8	9	9.6	10.6
Engineering	ENG	28	30	29.5	32.8
Aerodynamics	AERO	7	7	7.5	7.5
Meteorology	METRO	4	4	4.8	4.8
Instrument Navigation	INAV	13	13	14.0	14.0
TOTALS		60	63	65.4	69.7

b. Advanced Strike

SUBJECT	SYMBOL	T-45A PERIOD	T-45C PERIOD	T-45A HOURS	T-45C HOURS
Operational Navigation	ONAV	6	6	28.0	28.0
TOTALS		6	6	28.0	28.0

2. Training Allocation by Module

a. Intermediate Jet

	FLIGHT		SIMULATOR		FLT SUPPORT				ACADEMICS			
					T-45A		T-45C		T-45A		T-45C	
MOD	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS
00									5.6	6	5.6	6
01					9.5	5	9.5	5	58.8	53	63.1	56
02	30.6	23	49.9	35	47.3	35	57.5	44	1.0	1	1.0	1
03	48.1	32	25.1	17	21.5	17	21.5	17				
04	5.0	8	2.8	2	2.5	3	2.5	3				
TOTALS	83.7	63	77.8	54	80.8	60	91.0	69	65.4	60	69.7	63

b. Advanced Strike

	FLIGHT		SIMULATOR		FLT SUPPORT				ACADEMICS			
					T-45A		T-45C		T-45A		T-45C	
MOD	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS
05	20.4	17	13.5	11	9.1	9	8.4	8	28.0	6	28.0	6
06	27.6	21	3.9	3	8.3	8	8.3	8				
07	17.7	16	1.0	1	8.3	7	8.3	7				
08	12.7	14	4.3	3	5.0	3	5.0	3				
TOTALS	78.4	68	22.7	18	30.7	27	30.0	26	28.0	6	28.0	6

c. Intermediate E2/C2

	FLIGHT		SIMULATOR		FLT SUPPORT				ACADEMICS			
					T-45A		T-45C		T-45A		T-45C	
MOD	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS	HRS	EVTS
09	5.2	5										
10	12.8	15	4.3	3	5.0	3	5.0	3				
TOTALS	18.0	20	4.3	3	5.0	3	5.0	3				

3. Training Time Analysis. The following table shows the additional training time involved for each programmed curriculum hour, flight or simulator event. The figures represent the average additional time a student is involved in the direct learning process. Training time is expressed in curriculum time, not calendar days or calendar weeks.

ADDITIONAL TRAINING TIME PER PROGRAM CURRICULUM HOUR (ch) or EVENT (e)

Training Area	Preparation and Study	Brief and Debrief	Preflight/ Start/Taxi	Total(k)
Flight	1.0	2.00	0.5	3.50*
Simulator	1.0	1.00		2.00*
Academic and Flight Support	0.5**			0.50***

* Additional training time per event.
** Self-preparation and study time for academic and flight support may include audiovisual training aids.
*** Additional training time per curriculum hour.

a. Administrative Time. Transit time from activity to activity, meals, scheduling delays, and military watch standing duties are not considered. The student training week is based on 8 hours of training per day, 5 days a week (40 hours).

b. Time-To-Train. Computation of curriculum time is based on the formulas contained in reference (a).

(1) TW-1 T-45C TIME-TO-TRAIN

(a) Intermediate Jet

Flights:	63 Events	Tf = 78.03 Training Days
Simulators:	54 Events	Ts = 28.64 Training Days
Academics:	69.7 Hours	
Flight Support:	91.0 Hours	
Selection: 5 Days =	25.8 Hours	Ta= 23.31 Training Days

Total Training Days:

Tt = Tf + Ts + Ta = 78.03 + 28.64 + 23.31 = **129.98 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 129.97/(235/365) = **201.87 Calendar Days**

201.87/7 = **28.84 Calendar Weeks**

(b) Advanced Strike:

Flights:	68 Events	Tf = 84.22 Training Days
Simulators:	18 Events	Ts = 9.54 Training Days
Academics	28.0 Hours	
Flight Support	30.0 Hours	
Winging: 11 Days =	56.7 Hours	Ta = 14.34 Training Days

Total Training Days:

Tt = Tf + Ts + Ta = 84.22 + 9.54 + 14.34 = **108.10 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 108.10/(235/365) = **167.90 Calendar Days**

167.90/7 = **23.99 Calendar Weeks**

(c) Intermediate E2/C2

Flights:	20 Events	Tf = 25.26 Training Days
Simulators:	3 Events	Ts = 1.64 Training Days
Academics:	0.0 Hours	
Flight Support:	5.0 Hours	
Selection: 5 Days =	25.8 Hours	Ta = 3.85 Training Days

Total Training Days:

Tt = Tf + Ts + Ta = 25.26 + 1.64 + 3.85 = **30.75 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 30.75/(235/365) = **47.76 Calendar Days**

47.76/7 = **6.82 Calendar Weeks**

(2) TW-2 T-45C TIME-TO-TRAIN

(a) Intermediate Jet

Flights:	63 Events	Tf = 72.99 Training Days
Simulators:	54 Events	Ts = 28.64 Training Days
Academics:	69.7 Hours	
Flight Support:	91.0 Hours	
Selection: 5 Days =	25.8 Hours	Ta = 23.31 Training Days

Total Training Days:

Tt = Tf + Ts + Ta = 72.99 + 28.64 + 23.31 = **124.94 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 124.94/(235/365) = **194.05 Calendar Days**

194.05/7 = **27.72 Calendar Weeks**

(b) Advanced Strike

Flights:	68 Events	Tf = 78.79 Training Days
Simulators:	18 Events	Ts = 9.54 Training Days
Academics	28.0 Hours	
Flight Support	30.0 Hours	
Winging: 11 Days =	56.7 Hours	Ta = 14.34 Training Days

Total Training Days:

Tt = Tf + Ts + Ta = 78.79 + 9.54 + 14.34 = **102.67 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 102.67/(235/365) = **159.46 Calendar Days**

159.46/7 = **22.78 Calendar Weeks**

(c) Intermediate E2/C2

Flights:	20 Events	Tf = 23.63 Training Days
Simulators:	3 Events	Ts = 1.64 Training Days
Academics:	0.0 Hours	
Flight Support:	5.0 Hours	
Selection: 5 Days =	25.8 Hours	Ta = 3.85 Training Days

Total Training Days:

Tt = Tf + Ts + Ta =23.63+ 1.64 + 3.85 = **29.12 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 30.75/(235/365) = **45.23 Calendar Days**

47.76/7 = **6.46 Calendar Weeks**

(3) TW-2 T-45A TIME-TO-TRAIN

(a) Intermediate Jet

Flights:	63 Events	Tf = 72.99 Training Days
Simulators:	54 Events	Ts = 28.64 Training Days
Academics:	65.4 Hours	
Flight Support:	80.8 Hours	
Selection: 5 Days =	25.8 Hours	Ta = 21.50 Training Days

Total Training Days:

Tt = Tf + Ts + Ta =72.99 + 28.64 + 21.50 = **123.13 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 123.13/(235/365) = **191.24 Calendar Days**

191.24/7 = **27.32 Calendar Weeks**

(b) Advanced Strike

Flights:	68 Events	Tf = 78.79 Training Days
Simulators:	18 Events	Ts = 9.54 Training Days
Academics	28.0 Hours	
Flight Support	30.7 Hours	
Winging: 11 Days =	56.7 Hours	Ta = 14.43 Training Days

Total Training Days:
Tt = Tf + Ts + Ta = 78.79 + 9.54 + 14.43 = **102.76 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 102.76/(235/365) = **159.60 Calendar Days**

159.60/7 = **22.80 Calendar Weeks**

(c) Intermediate E2/C2

Flights:	20 Events	Tf = 23.63 Training Days
Simulators:	3 Events	Ts = 1.64 Training Days
Academics:	0.0 Hours	
Flight Support:	5.0 Hours	
Selection: 5 Days =	25.8 Hours	Ta = 3.85 Training Days

Total Training Days:

Tt = Tf + Ts + Ta = 23.63 + 1.64 + 3.85 = **29.12 Training Days**

Calendar Days/Weeks:

CD = Tt/((Working days)/(Days per year))

= 29.12/(235/365) = **45.23 Calendar Days**

45.23/7 = **6.46 Calendar Weeks**

4. Module Summary

INTERMEDIATE JET

MODULE	FLIGHTS	SIMULATORS	FLIGHT SUPPORT	ACADEMICS
00 (ASI)				ASI-01- ASI-06
01 (Academics/Flight Support)				ASI-07
			CR-01	ENG-01- ENG-31X
			SEAT-01	
			ACT-01	AERO-01- AERO-07X
			ARMS-01	
			ORM-01	METRO-01- METRO-04X
				INAV-01- INAV-13X
				ASI-08
02 (Familiarization and Instruments)				
	BI-12- BI-14X	CO-07S- CO-08S	CO-01- CO-06	ASI-09
	RI-09- RI-14X	EP-01S- EP-06SX	CO-09- CO-10	
	FAM-08- FAM-20	BI-01S- BI-11SX	EMFP-01- EMFP-11X	
	OCF-02	RI-01S- RI-08X	BIFP-01- BIFP-10X	
		FAM-01S- FAM-07SX	RIFP-01- RIFP-05X	
		OCF-01S	CR-02- CR-03X	
			FAMFP-01- FAMFP-03X	
			OCFFP-01	
			OCFFP-02X	
			NATOPS-01- NATOPS-03X	

MODULE	FLIGHTS	SIMULATORS	FLIGHT SUPPORT	ACADEMICS
03 (Instruments/Formation/Night Familiarization)				
	AN-07-AN-11X	AN-01S-AN-06SX	ANFP-01-ANFP-02X	
	FORM-05-FORM-25	EP-07S	FFP-01-FFP-08X	
	NFAM-02-NFAM-04	FORM-01S-FORM-04S	NFAMFP-01-NFAMFP-03X	
	IR-05-IR-07X	EP-08S	IRFP-01-IRFP-04X	
		NFAM-01S		
		IR-01S-IR-04S		
04 (Field Carrier Landing Practice - Midstage CQ)				
	FCLP-02-FCLP-09X	FCLP-01S	CQFP-01-CQFP-03X	
		EP-09S		

ADVANCED STRIKE

MODULE	FLIGHTS	SIMULATORS	FLIGHT SUPPORT	ACADEMICS
05 (Operational Navigation/Weapons/Airways Navigation)				
	ON-04-ON-08X	AN-12SX	ONFP-01-ONFP-05X	ONAV-01-ONAV-06X
	WEP-07-WEP-16X	ON-01S-ON-03S	WEPFP-01-WEPFP-06X	
	AN-13X-AN-14	WEP-01S-WEP-06SX		
		EP-10S		
06 (Airways Navigation/Tactical Formation/Night Formation/ Operational Navigation)				
	AN-16-AN-20	AN-15S	TFFP-01-TFFP-04X	
	TACF-01-TACF-07	NFORM-01S	NFFP-01-NFFP-02X	
	NFORM-02-NFORM-04	EP-11S	ONFP-06-ONFP-07X	
	ON-09-ON-14			

MODULE	FLIGHTS	SIMULATORS	FLIGHT SUPPORT	ACADEMICS
07 (Air Combat Maneuvering/OCF)				
	OCF-04X ACM-01- ACM-15	OCF-03S	ACMFP-01- ACMFP-05X ACMFP-06- ACMFP-07X	
08 (Carrier Qualification - Strike)				
	NFORM-05 CQ-03X- CQ-15X	CQ-01S- CQ-02S EP-12S	CQFP-04- CQFP-06X	

INTERMEDIATE E2/C2

MODULE	FLIGHTS	SIMULATORS	FLIGHT SUPPORT	ACADEMICS
09 (E2/C2 Transition)				
	FAM-21- FAM-22 NFAM-05 FORM-26- FORM-27			
10 (Carrier Qualification - Intermediate E2/C2)				
	CQ-18X- CQ-32X	CQ-16S- CQ-17S EP-13S	CQFP-07- CQFP-09X	

5. Summary of Lead/Chase Overhead. The summary of the Instructor Lead/Chase planning factor hours for the T-45 Combined Flight Training Curriculum are tabulated below. The tables are a compilation of the sorties requiring Instructor Chase that can be found in the Module Summary section of this publication.

STAGE	# EVENTS	LEAD/CHASE HRS/EVENT	# OF STUDENTS PER CHASE	HRS/ STUDENT
a. Intermediate Jet				
FORM (2-PLANE)	11	1.2	1	13.20
FORM (4-PLANE)	5	1.3	3	2.17
NFAM	1	1.1	3	0.37
Total	17	3.6	7	15.74
b. Advanced Strike				
ON	6	1.0	2	3.00
WEP	10	0.9	3	3.00
TACF	7	1.0	1	7.00
NFORM	4	1.2	1	4.80
ACM (2-PLANE)	10	0.9	1	9.00
ACM (3-PLANE)	5	0.9	2	2.25
Total	42	5.9	10	29.05
c. Intermediate E2/C2				
CQ	1	4.2	6/4	2.80
Total	1	4.2	6/4	2.80

NOTE: Lead/Chase Hours per Event are approximate and are derived by subtracting 0.2 hours from the student sortie length. This accounts for student touch-and-goes while the lead full-stops first pass.

6. Outline of Training

CONTENTS

INTERMEDIATE JET

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MODULE 00

AVIATION STUDENT INDOCTRINATION (ASI)

OBJECTIVE. To indoctrinate the student on procedures, system usage, and command policies required to receive prescribed training in the T-45 combined flight training curriculum.

Includes: Aviation Student Indoctrination (ASI-01 through ASI-06).

NOTE: There are no examinations in this module. The computer-assisted instruction (CAI) lesson will provide procedures for taking examinations. Academic and flight support examinations are normally taken in the Learning Center. CAI-administered examinations may require materials such as examination booklets, video materials, NATOPS, etc. The student should check the examination booklet prior to logging on CAI for the examination. Read the examination instructions carefully. Contact the instructor or Learning Center monitor if any problems are encountered.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
00-01	LECT	ASI-01	COMMANDING OFFICER'S WELCOME ABOARD	1.3
00-02	LECT	ASI-02	SQUADRON CHECK-IN	1.5
00-03	MIL	ASI-03	INTRODUCTION TO SAFETY PROCEDURES	1.0
00-04	LECT/MIL	ASI-04	GROUND RULES	0.3
00-05	LECT	ASI-05	INTRODUCTION TO TIMS (LOG ON/OFF; SCHEDULES; SNIVELS; MESSAGES)	1.0
00-06	LECT	ASI-06	INTRODUCTION TO CAI	0.5

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MODULE 01

ACADEMICS/FLIGHT SUPPORT

OBJECTIVE. Provide the student with a comprehensive academic base of knowledge in T-45 Systems (Engineering), T-45 Aerodynamics, Meteorology, Instrument Navigation, Aircrew Coordination Training, Operational Risk Management, NACES Flight Physiology, Small Arms Qualification, and Course Rules.

Includes: Aviation Student Indoctrination (ASI-07 and ASI-08),Engineering (ENG-01 through ENG-31X), Aerodynamics (AERO-01 through AERO-07X), Meteorology (METRO-01 through METRO-04X), Instrument Navigation (INAV-01 through INAV-13X), BI/RI Course Rules (CR-01), Aircrew Coordination Training (ACT-01) Operational Risk Management (ORM-01), NACES Flight Physiology (SEAT-01), and Small Arms Qualification (ARMS-01).

NOTE 1: BI/RI Course Rules (CR-01) provides instruction on flight plan filing and operating procedures used in the Basic Instrument and Radio Instrument stages.

NOTE 2: Small arms qualification (ARMS-01) can be waived at discretion of the TRAWING COMMANDER.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
01-01	MIL	ASI-07	INTRODUCTION TO IFT/OFT	3.0
01-02	MIL	ENG-01	INTRODUCTION TO T-45 CONFIGURATION	1.3
01-03	MIL	ENG-02	ELECTRICAL SYSTEM	1.3
01-04	CAI	ENG-03	ELECTRICAL SYSTEM MALFUNCTIONS	0.7
01-05	MIL	ENG-04	ENGINE AND RELATED SYSTEMS	1.5
01-06	CAI	ENG-05	ENGINE AND RELATED SYSTEMS MALFUNCTIONS	1.4
01-07	CAI	ENG-06	ENGINE SYSTEM MALFUNCTIONS	0.7
01-08	MIL	ENG-07	AIRCRAFT FUEL SYSTEM	0.9
01-09	CAI	ENG-08	FUEL SYSTEM MALFUNCTIONS	0.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
01-10	MIL	ENG-09	HYDRAULIC SYSTEM	1.0
01-11	CAI	ENG-10	HYDRAULIC SYSTEM MALFUNCTIONS	1.0
01-12	MIL	ENG-11	HYDRAULIC SUBSYSTEMS	1.8
01-13	CAI	ENG-12	HYDRAULIC SUBSYSTEMS MALFUNCTIONS	1.0
01-14	MIL	ENG-13	FLIGHT CONTROL SYSTEM	1.3
01-15	CAI	ENG-14	FLIGHT CONTROL SYSTEM MALFUNCTIONS	0.7
01-16	MIL	ENG-15	EGRESS SYSTEM	1.0
01-17	CAI	ENG-16	EGRESS SYSTEM MALFUNCTIONS	0.5
01-18	MIL	ENG-17	OBOGS AND ECS/PRESSURIZATION SYSTEMS	0.9
01-19	CAI	ENG-18	OBOGS AND ECS/PRESSURIZATION SYSTEM MALFUNCTIONS	0.5
01-20	MIL	ENG-19	FLIGHT INSTRUMENTS	1.3
01-21	CAI	ENG-20	FLIGHT INSTRUMENTS MALFUNCTIONS	0.8
01-22	MIL	ENG-21	CNI SYSTEM	1.7
01-23	CAI	ENG-22	CNI SYSTEM MALFUNCTIONS	1.0
01-24	MIL	ENG-23	OTHER T-45 SYSTEMS	1.0
01-25	MIL	ENG-24	INS/GPS OPERATIONS AND CONCEPTS (T-45C ONLY)	1.5
01-26	CAI	ENG-25	DISPLAY SYSTEM AND MALFUNCTIONS (T-45C ONLY)	1.5
01-27	MIL	ENG-26	ENGINE START PROCEDURES	1.0
01-28	CAI	ENG-27	ENGINE START MALFUNCTIONS (T-45A ONLY)	0.7

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
01-29	CAI/MIL	ENG-28	ENGINEERING REVIEW	2.0
01-30	MIL	ENG-29	ENGINEERING REVIEW (T-45C ONLY)	1.0
01-31	CAI	ENG-30X	ENGINEERING BLOCK EXAMINATION	1.0
01-32	CAI	ENG-31X	ENGINEERING BLOCK EXAMINATION	1.0
01-33	CAI	AERO-01	GENERAL AERODYNAMICS REVIEW	0.5
01-34	MIL	AERO-02	HIGH SPEED FLIGHT	1.0
01-35	MIL	AERO-03	SLOW SPEED FLIGHT, STALL AND SPIN, AND AOA SYSTEM	1.5
01-36	MIL	AERO-04	STABILITY	0.5
01-37	CAI	AERO-05	ENGINE THRUST AND THRUST CURVE REVIEW	0.5
01-38	MIL	AERO-06	NATOPS PERFORMANCE CHARTS	2.5
01-39	CAI	AERO-07X	AERODYNAMICS BLOCK EXAMINATION	1.0
01-40	CAI	METRO-01	REVIEW OF BASIC METEOROLOGICAL PRINCIPLES	1.0
01-41	MIL	METRO-02	METEOROLOGY AND FLIGHT PLANNING	2.3
01-42	MIL	METRO-03	METEOROLOGY REVIEW	0.5
01-43	CAI	METRO-04X	METEOROLOGY BLOCK TEST	1.0
01-44	MIL	INAV-01	REVIEW OF FLIP AND FAA PUBLICATIONS	1.8
01-45	MIL	INAV-02	INTRODUCTION TO INAV AND VOICE PROCEDURES	1.0
01-46	CAI	INAV-03	USE AND OPERATION OF TACAN, VOR, VOR/DME AND HOLDING PROCEDURES	0.8

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
01-47	CAI	INAV-04	COMPONENTS AND CHARACTERISTICS OF THE INSTRUMENT LANDING SYSTEM (ILS)	0.8
01-48	CAI	INAV-05	TACAN/VOR NAVIGATION	0.8
01-49	MIL	INAV-06	DEPARTURE AND TERMINAL PROCEDURES	1.0
01-50	CAI	INAV-07	INTERPRETATION OF HIGH ALTITUDE INSTRUMENT APPROACH PLATES	0.8
01-51	LAB	INAV-08	FUEL, WEATHER, AND ALTERNATE AIRFIELD PLANNING	1.2
01-52	LAB/MIL	INAV-09	FLIGHT PLANNING (DEPARTURE)	0.8
01-53	MIL	INAV-10	FLIGHT PLANNING (ENROUTE)	1.0
01-54	LAB	INAV-11	PRACTICAL PROBLEMS	1.0
01-55	CAI	INAV-12X	INSTRUMENT NAVIGATION BLOCK EXAMINATION-PART 1	1.0
01-56	LAB	INAV-13X	INSTRUMENT NAVIGATION BLOCK EXAMINATION-PART 2	2.0
01-57	MIL	CR-01	BI/RI COURSE RULES	0.5
01-58	MIL	ACT-01	AIRCREW COORDINATION RESOURCE MANAGEMENT	3.0
01-59	LECT	ORM-01	OPERATIONAL RISK MANAGEMENT	1.0
01-60	MIL	SEAT-01	NACES FLIGHT PHYSIOLOGY	2.0
01-61	LAB	ARMS-01	SMALL ARMS QUALIFICATION	3.0
01-62	LECT	ASI-08	INTRODUCTION TO PART TASK TRAINER (T-45C ONLY)	1.0

MODULE 02

FAMILIARIZATION AND INSTRUMENTS

OBJECTIVES:

1. Familiarization Stage. Familiarize the student with normal and emergency procedures in the aircraft with emphasis on system operations, flight characteristics, and landing techniques.

Includes: Cockpit Orientation (CO-01 through CO-10), Aviation Student Indoctrination (ASI-09), Emergency Flight Procedures (EMFP-01 through EMFP-11X), Emergency Procedures simulators (EP-01S through EP-06SX), Course Rules (CR-02 and CR-03X), Familiarization Flight Procedures (FAMFP-01 through FAMFP-03X), Familiarization simulators and flights (FAM-01S through FAM-20), Out-of-Control Flight Procedures (OCFFP-01 and OCFFP-02X), OCF simulator and flight (OCF-01S and OCF-02), and NATOPS review and examinations (NATOPS-01 through NATOPS-03X).

NOTE 1: Cockpit orientation events shall be completed in order.

NOTE 2: ASI-09 shall be completed prior to CO-07S.

NOTE 3: CO-08S shall be completed prior to EP-01S.

NOTE 4: CO-10 shall be completed prior to BI-12.

NOTE 5: CR-03X shall be completed prior to FAMFP-01.

NOTE 6: Each student will have a primary and secondary flight instructor designated prior to FAM-08. No more than two flight events will be flown off-wing prior to FAM-19 flight. FAM-18X shall not be flown with primary or secondary instructors.

NOTE 7: OCF-01S, OCF-02, FAM-17, and EP-06SX may be scheduled anytime after FAM-12 but must be completed prior to FAM-18X.

NOTE 8: Open-book and closed-book NATOPS examinations shall be completed prior to FAM-18X. NATOPS instructions and examinations are administered by the squadron and are paper/pencil examinations.

NOTE 9: Student must have flown one straight-in, one abeam and one overhead PA prior to completion of FAM-12.

NOTE 10: Practice PAs will be flown to a full-stop only when dual.

NOTE 11: FAM-08 may not be scheduled prior to completing RI-14X.

NOTE 12: FAM-14 may be flown anytime after FAM-12, but prior to FAM-15.

NOTE 13: Must have flown two straight-in PAs, three overhead PA's, four abeam PAs, and five breaks prior to completion of FAM-17.

NOTE 14: Flights do not need to be assigned incomplete for PAs, provided students meet requirements of Notes 9 and 13.

NOTE 15: Students should have a minimum of 50 FCLP-type landings at completion of FAM-17. If this total is not met, a pattern warmup should be awarded prior to FAM-18X.

NOTE 16: FAM-18X shall be flown with visual reference to the ground.

NOTE 17: FAM-19 (solo) cannot be shotgunned.

NOTE 18: Jacket review required prior to check flights.

2. Basic Instruments Stage. Develop the student's instrument flying skill with emphasis on scan, aircraft control, and instrument interpretation.

Includes: Basic Instruments Flight Procedures (BIFP-01 through BIFP-10X), and Basic Instruments simulators and flights (BI-01S through BI-14X).

NOTE 1: BI-01S and BI-02S are full simulator periods split between two students.

NOTE 2: Only Brief Preparation, Headwork, and Procedures will be graded on BI-01S and BI-02S.

NOTE 3: Basic Instruments (BI-01S through BI-14X) are normally flown after completion of cockpit orientation and EMFP lessons/EP simulators (EP-01S through EP-04S).

NOTE 4: Jacket review required prior to check flight.

3. Radio Instruments Stage. Enable the student to navigate a jet aircraft from takeoff to landing, under IFR conditions with emphasis on scan development, instrument interpretation, precision and non-precision approaches, aircraft control, and procedural knowledge. Student will practice all checklists.

Includes: Radio Instruments Flight Procedures (RIFP-01 through RIFP-05X), and Radio Instruments simulators and flights (RI-01S through RI-14X).

NOTE: Jacket review required prior to check flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-01	LECT	CO-01	EJECTION SEAT LECTURE/NACES PREFLIGHT	1.0
02-02	CAI	CO-02	ENGINE START AND POSTSTART (T-45C ONLY)	1.0
02-03	CAI	CO-03	MULTI-FUNCTION DISPLAY AND NAVIGATION SYSTEM OPERATION (T-45C ONLY)	1.2
02-04	CAI	CO-04	DISPLAY SYSTEM (HUD) (T-45C ONLY)	0.8
02-05	CAI	CO-05	WAYPOINT NAVIGATION PROCEDURES (T-45C ONLY)	1.2
02-06	MIL	CO-06	VELOCITY VECTOR (T-45C ONLY)	1.0
02-07	LECT	ASI-09	INTRODUCTION TO TIMS, PART 2 (YELLOW SHEETS; COURSE MAPS; CURRICULUM)	1.0
02-08	IFT	CO-07S	COCKPIT ORIENTATION SEVEN SIMULATOR	1.5
02-09	OFT	CO-08S	COCKPIT ORIENTATION EIGHT SIMULATOR	1.5
02-10	MIL	EMFP-01	START, GROUND, AND TAKEOFF EMERGENCY PROCEDURES	1.5
02-11	CAI	EMFP-02	START, GROUND, AND TAKEOFF EMERGENCY PROCEDURES (T-45C ONLY)	1.5
02-12	MIL	EMFP-03	OPERATIONAL AND EJECTION EMERGENCY PROCEDURES (INCLUDES WORKBOOK)	1.0

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-13	MIL	EMFP-04	ENGINE AND HYDRAULIC EMERGENCY PROCEDURES	1.5
02-14	CAI	EMFP-05	ENGINE AND HYDRAULIC EMERGENCY PROCEDURES (T-45C ONLY)	1.5
02-15	CAI	EMFP-06X	EMERGENCY FLIGHT PROCEDURES EXAMINATION ONE	1.0
02-16	IFT/OFT	EP-01S	EMERGENCY PROCEDURES ONE SIMULATOR	1.3
02-17	IFT/OFT	EP-02S	EMERGENCY PROCEDURES TWO SIMULATOR	1.3
02-18	MIL	EMFP-07	CANOPY AND FLIGHT CONTROL EMERGENCY PROCEDURES (INCLUDES WORKBOOK)	1.0
02-19	MIL	EMFP-08	ELECTRICAL AND INDICATOR EMERGENCY PROCEDURES	1.5
02-20	CAI	EMFP-09	ELECTRICAL AND INDICATOR EMERGENCY PROCEDURES (T-45C ONLY)	1.5
02-21	MIL	EMFP-10	OPERATIONAL AND LANDING EMERGENCY PROCEDURES (INCLUDES WORKBOOK)	1.5
02-22	CAI	EMFP-11X	EMERGENCY FLIGHT PROCEDURES EXAMINATION TWO	1.0
02-23	IFT/OFT	EP-03S	EMERGENCY PROCEDURES THREE SIMULATOR	1.3
02-24	OFT	EP-04S	EMERGENCY PROCEDURES FOUR SIMULATOR	1.3
02-25	CAI	CO-09	EXTERIOR PREFLIGHT CHECKS	0.6
02-26	LAB	CO-10	AIRCRAFT PREFLIGHT/EGRESS TRAINING	1.5
02-27	MIL	CR-02	COURSE RULES	2.0

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-28	CAI	CR-03X	COURSE RULES STAGE EXAMINATION	1.0
02-29	MIL	BIFP-01	INSTRUMENT TAKEOFF AND CLIMB WITH SID	1.3
02-30	CAI	BIFP-02	INTRODUCTION TO BASIC INSTRUMENTS	0.7
02-31	CAI	BIFP-03	INSTRUMENT TURNS	0.8
02-32	CAI	BIFP-04	BASIC FLIGHT MANEUVERS AND TRANSITIONS	0.8
02-33	CAI	BIFP-05	“S” PATTERNS	0.8
02-34	MIL	BIFP-06	STALLS, UNUSUAL ATTITUDES, AND AEROBATICS	1.1
02-35	MIL	BIFP-07	TACAN AND VOR PROCEDURES	1.5
02-36	MIL	BIFP-08	GCA/ILS PROCEDURES	1.5
02-37	MIL	BIFP-09	INSTRUMENT FAILURES	1.0
O2-38	CAI	BIFP-10X	BASIC INSTRUMENTS STAGE EXAMINATION	1.0
02-39	IFT/OFT	BI-01S	BASIC INSTRUMENTS ONE SIMULATOR	0.7
02-40	IFT/OFT	BI-02S	BASIC INSTRUMENTS TWO SIMULATOR	0.7
02-41	IFT/OFT	BI-03S	BASIC INSTRUMENTS THREE SIMULATOR	1.5
02-42	IFT/OFT	BI-04S	BASIC INSTRUMENTS FOUR SIMULATOR	1.5
02-43	IFT/OFT	BI-05S	BASIC INSTRUMENTS FIVE SIMULATOR	1.5
02-44	IFT/OFT	BI-06S	BASIC INSTRUMENTS SIX SIMULATOR	1.5
02-45	IFT/OFT	BI-07S	BASIC INSTRUMENTS SEVEN SIMULATOR	1.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-46	IFT/OFT	BI-08S	BASIC INSTRUMENTS EIGHT SIMULATOR	1.5
02-47	IFT/OFT	BI-09S	BASIC INSTRUMENTS NINE SIMULATOR	1.5
02-48	IFT/OFT	BI-10S	BASIC INSTRUMENTS TEN SIMULATOR	1.5
02-49	IFT/OFT	BI-11SX	BASIC INSTRUMENTS ELEVEN SIMULATOR CHECK	1.5
02-50	T-45/RC HOOD	BI-12	BASIC INSTRUMENTS TWELVE	1.5
02-51	MIL	RIFP-01	INTRODUCTION TO RADIO INSTRUMENTS	2.5
02-52	CAI	RIFP-02	TACAN AND VOR PROCEDURES (T-45C ONLY)	0.5
02-53	CAI	RIFP-03	TACAN AND VOR HOLDING PROCEDURES	0.5
02-54	CAI	RIFP-04	TACAN/VOR/ILS/PAR/ASR APPROACH PROCEDURES	1.0
02-55	CAI	RIFP-05X	RADIO INSTRUMENTS STAGE EXAMINATION	1.0
02-56	T-45/RC HOOD	BI-13	BASIC INSTRUMENTS THIRTEEN	1.5
02-57	T-45/RC HOOD	BI-14X	BASIC INSTRUMENTS FOURTEEN CHECK	1.5
02-58	IFT/OFT	RI-01S	RADIO INSTRUMENTS ONE SIMULATOR	1.5
02-59	IFT/OFT	RI-02S	RADIO INSTRUMENTS TWO SIMULATOR	1.5
02-60	OFT	RI-03S	RADIO INSTRUMENTS THREE SIMULATOR	1.5
02-61	OFT	RI-04S	RADIO INSTRUMENTS FOUR SIMULATOR	1.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-62	IFT/OFT	RI-05S	RADIO INSTRUMENTS FIVE SIMULATOR	1.5
02-63	OFT	RI-06S	RADIO INSTRUMENTS SIX SIMULATOR	1.5
02-64	OFT	RI-07S	RADIO INSTRUMENTS SEVEN SIMULATOR	1.5
02-65	OFT	RI-08SX	RADIO INSTRUMENTS EIGHT SIMULATOR CHECK	1.5
02-66	T-45/RC HOOD	RI-09	RADIO INSTRUMENTS NINE	1.5
02-67	T-45/RC HOOD	RI-10	RADIO INSTRUMENTS TEN	1.6
02-68	T-45/RC HOOD	RI-11	RADIO INSTRUMENTS ELEVEN	1.6
02-69	T-45/RC HOOD	RI-12	RADIO INSTRUMENTS TWELVE	1.6
02-70	T-45/RC HOOD	RI-13	RADIO INSTRUMENTS THIRTEEN	1.7
02-71	MIL	FAMFP-01	FAMILIARIZATION FLIGHT PROCEDURES	3.4
02-72	MIL	FAMFP-02	FAMILIARIZATION FLIGHT PROCEDURES	3.3
02-73	CAI	FAMFP-03X	FAMILIARIZATION STAGE EXAMINATION	1.0
02-74	T-45/RC HOOD	RI-14X	RADIO INSTRUMENTS FOURTEEN CHECK	1.7
02-75	OFT	FAM-01S	FAMILIARIZATION ONE SIMULATOR	1.5
02-76	OFT	FAM-02S	FAMILIARIZATION TWO SIMULATOR	1.5
02-77	OFT	FAM-03S	FAMILIARIZATION THREE SIMULATOR	1.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-78	OFT	EP-05S	EMERGENCY PROCEDURES FIVE SIMULATOR	1.5
02-79	OFT	FAM-04S	FAMILIARIZATION FOUR SIMULATOR	1.5
02-80	OFT	FAM-05S	FAMILIARIZATION FIVE SIMULATOR	1.5
02-81	OFT	FAM-06S	FAMILIARIZATION SIX SIMULATOR	1.5
02-82	OFT	FAM-07SX	FAMILIARIZATION SEVEN SIMULATOR CHECK	1.5
02-83	T-45/FC	FAM-08	FAMILIARIZATION EIGHT	1.3
02-84	T-45/FC	FAM-09	FAMILIARIZATION NINE	1.3
02-85	T-45/FC	FAM-10	FAMILIARIZATION TEN	1.3
02-86	T-45/FC	FAM-11	FAMILIARIZATION ELEVEN	1.3
02-87	T-45/FC	FAM-12	FAMILIARIZATION TWELVE	1.3
02-88	T-45/FC	FAM-13	FAMILIARIZATION THIRTEEN	1.3
02-89	T-45/FC	FAM-14	FAMILIARIZATION FOURTEEN	1.0
02-90	T-45/FC	FAM-15	FAMILIARIZATION FIFTEEN	1.3
02-91	T-45/FC	FAM-16	FAMILIARIZATION SIXTEEN	1.3
02-92	MIL	OCFFP-01	OUT-OF-CONTROL FLIGHT	1.0
02-93	CAI	OCFFP-02X	OCF STAGE EXAMINATION	1.0
02-94	OFT	OCF-01S	OUT-OF-CONTROL FLIGHT ONE SIMULATOR	1.5
02-95	T-45/FC	OCF-02	OUT-OF CONTROL FLIGHT TWO	0.8
02-96	OFT	EP-06SX	EMERGENCY PROCEDURES SIX SIMULATOR CHECK	1.3

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-97	T-45/FC	FAM-17	FAMILIARIZATION SEVENTEEN	1.0
02-98	LECT/MIL	NATOPS-01	NATOPS REVIEW	2.0
02-99	PENCIL	NATOPS-2X	NATOPS OPEN-BOOK EXAMINATION	2.0
02-100	PENCIL	NATOPS-3X	NATOPS CLOSED-BOOK EXAMINATION	2.0
02-101	T-45/FC	FAM-18X	FAMILIARIZATION EIGHTEEN CHECK	1.3
02-102	T-45/ SOLO	FAM-19	FAMILIARIZATION NINETEEN	1.2
02-103	T-45/FC	FAM-20	FAMILIARIZATION TWENTY	0.7

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-08	IFT	CO-07S	COCKPIT ORIENTATION SEVEN SIMULATOR	1.5

Brief:

a. QOD
b. IFT operation
c. Ground signals
d. Final checker
e. Shutdown signals

Demonstrate:

Enter mission data into display system

Introduce:

a. Inventory flight equipment
b. Don flight equipment
c. Canopy/ejection seat preflight
d. Strap-in procedures
e. Blindfold cockpit check
f. Cockpit preflight checklist
g. Prestart checklist
h. Aircraft start
i. Poststart checklist
j. Pretaxi checklist
k. Ground communications
l. Taxi checklist
m. Flight instrument checks
n. Takeoff checklist
o. Takeoff clearance
p. Engine checks
q. Takeoff
r. Departure communications
s. 10,000-ft checklist/15-minute report
t. Descent/penetration checklist
u. Landing checklist
v. After landing checklist
w. Shutdown checklist
x. Normal egress procedures

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-09	OFT	CO-08S	COCKPIT ORIENTATION EIGHT SIMULATOR	1.5

Brief:

a. QOD
b. OFT operation
c. Ground signals
d. Final checker

Introduce:

a. Enroute communications
b. Approach control communications
c. VFR approach to pattern initial
d. Communications to tower
e. After landing communications

Practice:

a. Don flight equipment
b. Canopy/ejection seat preflight
c. Strap-in procedures
d. Cockpit preflight checklist
e. Prestart checklist
f. Aircraft start
g. Poststart checklist
h. Ground communications
i. Taxi checklist
j. Aircraft taxi
k. Flight instrument checks
l. Takeoff checklist
m. Takeoff clearance
n. Engine checks
o. Takeoff
p. Departure communications
q. 10,000-ft checklist/15-minute report
r. Descent/penetration checklist
s. Landing checklist
t. After landing checklist
u. Shutdown checklist
v. Normal egress procedures

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-16	IFT/OFT	EP-01S	EMERGENCY PROCEDURES ONE SIMULATOR	1.3

Brief:

a. QOD
b. Canopy malfunctions
c. Engine fire on deck
d. Airstart

Introduce:

a. No READY light
b. Wet start
c. Low oil pressure on start
d. Hot start
e. Ground emergency communications
f. Unsafe gear (UP)
g. Fuel leak
h. LP fuel pump failure
i. Boost pump failure
j. Initial shot failure
k. Engine fire, no secondary indications
l. GINA failures/NGS/SAHRS
m. Engine fire on shutdown
n. Emergency egress

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-17	IFT/OFT	EP-02S	EMERGENCY PROCEDURES TWO SIMULATOR	1.3

Brief:

a. QOD
b. Ground ejection situations
c. Engine stalls
d. Short-field arrested landing
e. Go-around

Introduce:

a. Engine fire on start
b. Hung start
c. GTS fire
d. Trim malfunctions
e. Engine fire, secondary indications
f. Engine overspeed
g. Engine flameout
h. Airstart (high altitude)
i. ECA failure (full trim)
j. Engine vibration
k. Engine stalls
l. Engine failure (seizure)
m. Oil pressure failure
n. Ejection

Practice:

Ground emergency communications

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-23	IFT/OFT	EP-03S	EMERGENCY PROCEDURES THREE SIMULATOR	1.3

Brief:

a. QOD
b. Gear door malfunctions
c. Long-field arrested landing

Introduce:

a. Bleed valve failure
b. Engine fail on takeoff
c. Generator failure
d. Inverter failure
e. Total electrical failure
f. Uncommanded RAT extension
g. HYD 1 EDP failure
h. HYD 2 EDP failure
i. HYD 1, 2 fail RAT OK
j. Total hydraulic failure
k. Accumulator failure
l. CONTR AUG failure
m. Emergency communications
n. MFD failure

Practice:

Hot start

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-24	OFT	EP-04S	EMERGENCY PROCEDURES FOUR SIMULATOR	1.3

Brief:

a. QOD
b. Smoke/fumes in cockpit
c. Rudder trim failure
d. Stabilator trim failure
e. Flaps fail to retract
f. Slats fail to retract
g. Flaps fail to extend
h. Slats fail to extend
i. Split slats
j. Gear unsafe after lowering
k. Gear door malfunctions after lowering
l. Go-around

Introduce:

a. Blown tire during takeoff
b. Runaway rudder trim
c. Rudder hardover
d. Runaway stabilator trim
e. Runaway aileron trim
f. Aileron trim failure
g. S/B fails to retract
h. Split flaps
i. Pitot static malfunctions
j. Main/nose gear unsafe down
k. Gear emergency extend failure
l. Brake accumulator failure
m. Brake fail after touchdown

Practice:

a. ECA failure
b. GINA failures/NGS/SAHRS
c. Emergency communications
d. Ejection

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-39	IFT/OFT	BI-01S	BASIC INSTRUMENTS ONE SIMULATOR	0.7

Brief:

a. QOD
b. Control instruments
c. Performance instruments
d. Position instruments
e. Instrument scan
f. Scan technique

Introduce:

a. Brief preparation
b. Instrument checks
c. ½ standard rate turn
d. Turn pattern
e. Level speed changes
f. S-1 pattern
g. Slow flight maneuver
h. Penetration checklist
i. Penetration
j. Transition to landing configuration

NOTES:

(1) Only Brief Preparation, Headwork and Procedures will be graded.

(2) BI-01 & BI-02 should be flown with separate instructors.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-40	IFT/OFT	BI-02S	BASIC INSTRUMENTS TWO SIMULATOR	0.7

Brief:

a. QOD
b. Control instruments
c. Performance instruments
d. Position instruments
e. Instrument scan
f. Scan technique

Practice:

a. Brief preparation
b. Instrument checks
c. ½ standard rate turn
d. Turn pattern
e. Level speed changes
f. S-1 pattern
g. Slow flight maneuver
h. Penetration checklist
i. Penetration
j. Transition to landing configuration

NOTES:

(1) Only Brief Preparation, Headwork and Procedures will be graded.

(2) BI-01 & BI-02 should be flown with separate instructors.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-41	IFT/OFT	BI-03S	BASIC INSTRUMENTS THREE SIMULATOR	1.5

Brief:

QOD

Demonstrate:

TACAN/VOR DME approach

Introduce:

a. IFR clearances
b. Instrument communications
c. ITO
d. SID
e. Climb/descent
f. S-3 pattern
g. Instrument transitions
h. PAR approach
i. Missed approach
j. Extra approach (if time permits)

Practice:

a. Brief preparation
b. Instrument checks
c. Turn pattern
d. Level speed changes
e. ½ standard rate turn
f. S-1 pattern
g. Slow flight maneuver
h. Penetration checklist

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-42	IFT/OFT	BI-04S	BASIC INSTRUMENTS FOUR SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Standard rate turn
b. TACAN/VOR DME approach

Practice:

a. Brief preparation
b. IFR clearances
c. Instrument checks
d. Instrument communications
e. ITO
f. SID
g. Turn pattern
h. Level speed changes
i. ½ standard rate turn
j. S-1 pattern
k. S-3 pattern
l. Slow flight maneuver
m. Penetration checklist
n. Instrument transitions
o. PAR approach
p. Missed approach
q. Extra approach (if time permits)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-43	IFT/OFT	BI-05S	BASIC INSTRUMENTS FIVE SIMULATOR	1.5

Brief:

a. QOD
b. Main ADI failure
c. NGS/GINA malfunctions
d. Turn and slip failure
e. HSI failure
f. Multi-function display failure (T-45C only)

Introduce:

a. Level speed change ½ SRT
b. Stall series
c. Partial panel

Practice:

a. Brief preparation
b. IFR clearances
c. Instrument checks
d. Instrument communications
e. ITO
f. SID
g. Turn pattern
h. Level speed changes
i. ½ standard rate turn
j. Standard rate turn
k. TACAN/VOR DME approach
l. S-1 pattern
m. S-3 pattern
n. Penetration checklist
o. PAR approach
p. Missed approach
q. Extra approach (if time permits)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-44	IFT/OFT	BI-06S	BASIC INSTRUMENTS SIX SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Aileron roll
b. Wingover
c. ASR approach

Practice:

a. Brief preparation
b. Checklists
c. IFR clearances
d. Instrument communications
e. ITO
f. SID
g. Turn pattern
h. ½ standard rate turn
i. Standard rate turn
j. Level speed change ½ SRT
k. Stall series
l. S-1 pattern
m. S-3 pattern
n. TACAN/VOR DME approach
o. Missed approach
p. Extra approach (if time permits)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-45	IFT/OFT	BI-07S	BASIC INSTRUMENTS SEVEN SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Barrel roll
b. Partial panel timed turns
c. VOR penetration/approach

Practice:

a. Brief preparation
b. Checklists
c. IFR clearances
d. Instrument communications
e. ITO
f. SID
g. Turn pattern
h. ½ standard rate turn
i. Standard rate turn
j. Level speed change ½ SRT
k. S-1 pattern
l. S-3 pattern
m. Stall series
n. Wingover
o. Partial panel
p. ASR approach
q. Missed approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-46	IFT/OFT	BI-08S	BASIC INSTRUMENTS EIGHT SIMULATOR	1.5

Brief:

a. QOD
b. ILS approach procedures

Introduce:

a. Unusual attitudes
b. Loop
c. ILS approach
d. PAR approach partial panel

Practice:

a. Brief preparation
b. Checklists
c. Instrument communications
d. ITO
e. SID
f. Standard rate turn
g. S-3 pattern
h. Stall series
i. Partial panel timed turn
j. Barrel roll
k. Partial panel
l. Penetration checklist
m. TACAN/VOR DME approach
n. Missed approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-47	IFT/OFT	BI-09S	BASIC INSTRUMENTS NINE SIMULATOR	1.5

Brief:

QOD

Introduce:

Half-Cuban eight

Practice:

a. Brief preparation
b. Checklists
c. IFR clearances
d. Instrument communications
e. ITO
f. ILS approach
g. SID
h. Level speed change ½ SRT
i. Standard rate turn
j. S-3 pattern
k. Stall series
l. Loop
m. Partial panel
n. TACAN/VOR DME approach
o. Missed approach
p. PAR approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-48	IFT/OFT	BI-10S	BASIC INSTRUMENTS TEN SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Unusual attitudes partial panel
b. TACAN/VOR DME approach partial panel
c. Missed approach partial panel
d. ILS approach partial panel
e. No gyro GCA

Practice:

a. Brief preparation
b. Checklists
c. Instrument communications
d. ITO
e. SID
f. Level speed change ½ SRT
g. S-3 pattern
h. ILS approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-49	IFT/OFT	BI-11SX	BASIC INSTRUMENTS ELEVEN SIMULATOR CHECK	1.5

Brief:

QOD

Review:

a. Brief preparation
b. Checklists
c. Instrument communications
d. ITO
e. SID
f. Level speed change ½ SRT
g. S-3 pattern
h. Stall series
i. Unusual attitudes
j. Unusual attitudes partial panel
k. TACAN/VOR DME penetration/approach partial panel
l. ILS approach
m. Missed approach partial panel
n. ASR approach partial panel
o. No gyro GCA

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-50	T-45/RC HOOD	BI-12	BASIC INSTRUMENTS TWELVE	1.5

Brief:

a. QOD
b. RADALT usage
c. Approach configurations
d. Compressor stall

Introduce:

Man-up and seat preflight

Practice:

a. Checklists
b. IFR clearances
c. Instrument communications
d. SID
e. Turn pattern
f. Level speed change ½ SRT
g. S-1 pattern
h. S-3 pattern
i. Stall series
j. Slow flight maneuver
k. Partial panel
l. Unusual attitudes
m. TACAN/VOR DME approach
n. Missed approach
o. PAR approach
p. ASR approach partial panel

NOTE: Brief should begin 2 hours prior to scheduled takeoff.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-56	T-45/RC HOOD	BI-13	BASIC INSTRUMENTS THIRTEEN	1.5

Brief:

QOD

Practice:

a. Checklists
b. Instrument communications
c. SID
d. TACAN/VOR DME approach
e. Missed approach
f. ASR approach
g. ILS/PAR approach
h. PAR approach partial panel
i. No gyro GCA

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-57	T-45/RC HOOD	BI-14X	BASIC INSTRUMENTS FOURTEEN CHECK	1.5

Brief:

QOD

Review:

a. Checklists
b. IFR clearances
c. Instrument communications
d. SID
e. S-3 pattern
f. Stall series
g. Unusual attitudes
h. Unusual attitudes partial panel
i. Partial panel approach(es)
j. TACAN/VOR DME approach partial panel
k. Missed approach partial panel
l. PAR approach
m. ILS approach

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-58	IFT/OFT	RI-01S	RADIO INSTRUMENTS ONE SIMULATOR	1.5

Brief:

a. QOD
b. Lost communications
c. Minimum fuel/emergency fuel GCA

Introduce:

a. Complete DD 175 with single-engine jet log
b. Radial intercept
c. Point-to-point
d. VOR failure
e. TACAN/VOR DME arc
f. Wind drift correction
g. TACAN/VOR DME holding
h. Station passage
i. Climb schedule

Practice:

a. Checklists
b. Instrument communications
c. ATC clearance
d. ITO
e. SID
f. TACAN/VOR DME approach partial panel
g. Missed approach
h. ILS approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-59	IFT/OFT	RI-02S	RADIO INSTRUMENTS TWO SIMULATOR	1.5

Brief:

a. QOD
b. Marker beacon failure

Introduce:

a. Groundspeed checks
b. TACAN failure
c. Lost communications
d. ILS glideslope failure
e. Localizer approach

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. ITO
f. SID
g. Radial intercept
h. Electrical emergencies
i. Point-to-point
j. Wind drift correction
k. TACAN/VOR DME approach partial panel
l. Missed approach
m. ILS approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-60	OFT	RI-03S	RADIO INSTRUMENTS THREE SIMULATOR	1.5

Brief:

a. QOD
b. BINGO profile

Introduce:

a. Localizer failure
b. Minimum fuel instrument approach
c. Emergency fuel instrument approach

Practice:

a. Checklists
b. Lost communications
c. ATC clearance
d. Complete DD 175 with single-engine jet log
e. ITO
f. SID
g. Point-to-point
h. Groundspeed checks
i. Flight instrument emergencies
j. TACAN/VOR DME holding
k. High ILS approach
l. Missed approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-61	OFT	RI-04S	RADIO INSTRUMENTS FOUR SIMULATOR	1.5

Brief:

a. QOD
b. HSI failure

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. ITO
f. SID
g. Radial intercept
h. Groundspeed checks
i. Lost communications
j. Wind drift correction
k. ILS approach partial panel
l. Flight instrument emergencies
m. TACAN/VOR DME approach partial panel
n. Missed approach
o. No gyro GCA

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-62	IFT/OFT	RI-05S	RADIO INSTRUMENTS FIVE SIMULATOR	1.5

Brief:

a. QOD
b. Marker beacon failure
c. Oil pressure warning

Introduce:

a. Radar altimeter failure
b. VOR holding
c. Localizer approach partial panel
d. Precautionary instrument approach

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. ITO
f. SID
g. Flight control emergencies
h. ILS glideslope failure
i. Localizer failure
j. Missed approach
k. Engine emergencies

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-63	OFT	RI-06S	RADIO INSTRUMENTS SIX SIMULATOR	1.5

Brief:

a. QOD
b. Localizer back course approach procedures

Introduce:

a. Visual takeoff low ceiling ITO
b. Localizer (LOC) back course approach
c. Instrument to visual scan

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. SID
f. Groundspeed checks
g. TACAN/VOR DME arc
h. Point-to-point
i. Wind drift correction
j. TACAN/VOR DME holding
k. In-flight emergencies
l. TACAN/VOR DME approach
m. Missed approach
n. ILS approach
o. PAR approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-64	OFT	RI-07S	RADIO INSTRUMENTS SEVEN SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Direct routing
b. Circling approach to land
c. CDI failure
d. IFF failure

Practice:

a. Complete DD 175 with single-engine jet log
b. Instrument communications
c. ATC clearance
d. Visual takeoff low ceiling
e. SID
f. Groundspeed checks
g. TACAN/VOR DME arc
h. Point-to-point
i. Wind drift correction
j. In-flight emergencies
k. TACAN/VOR DME holding
l. TACAN/VOR DME penetration/approach
m. Missed approach
n. ILS approach
o. Instrument to visual scan

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-65	OFT	RI-08SX	RADIO INSTRUMENTS EIGHT SIMULATOR CHECK	1.5

Brief:

QOD

Review:

a. Direct routing
b. Complete DD 175 with single-engine jet log
c. Instrument communications
d. ATC clearance
e. Visual takeoff low ceiling
f. SID
g. Groundspeed checks
h. TACAN/VOR DME arc
i. Point-to-point
j. CDI failure
k. Wind drift correction
l. In-flight emergencies
m. Circling approach to land
n. IFF failure
o. TACAN/VOR DME holding
p. TACAN/VOR DME penetration/approach
q. Missed approach
r. ILS approach
s. Instrument to visual scan

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-66	T-45/RC HOOD	RI-09	RADIO INSTRUMENTS NINE	1.5

Brief:

QOD

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. ITO
f. SID
g. Radial intercept
h. Groundspeed checks
i. TACAN/VOR DME arc
j. Point-to-point
k. Wind drift correction
l. TACAN/VOR DME holding
m. Simulated emergency (airborne)
n. TACAN/VOR DME approach
o. Missed approach
p. ILS approach partial panel
q. PAR approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-67	T-45/RC HOOD	RI-10	RADIO INSTRUMENTS TEN	1.6

Brief:

QOD

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. ITO
f. SID
g. Radial intercept
h. Groundspeed checks
i. Point-to-point
j. Wind drift correction (if required)
k. TACAN/VOR DME holding
l. Simulated emergency (airborne)
m. TACAN/VOR DME approach partial panel
n. Missed approach
o. ASR approach partial panel
p. Minimum fuel/emergency fuel instrument approach
q. ILS approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-68	T-45/RC HOOD	RI-11	RADIO INSTRUMENTS ELEVEN	1.6

Brief:

a. QOD
b. Engine emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. SID
f. Groundspeed checks
g. Point-to-point
h. Wind drift correction (if required)
i. TACAN/VOR DME holding
j. Simulated emergency (airborne)
k. TACAN/VOR DME approach partial panel
l. Missed approach
m. ILS approach partial panel
n. Precautionary instrument approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-69	T-45/RC HOOD	RI-12	RADIO INSTRUMENTS TWELVE	1.6

Brief:

QOD

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. ITO
f. SID
g. Point-to-point
h. Wind drift correction (if required)
i. TACAN/VOR DME holding
j. Simulated emergency (airborne)
k. TACAN/VOR DME approach partial panel
l. Missed approach
m. ASR approach partial panel
n. Minimum fuel/emergency fuel instrument approach
o. ILS approach partial panel

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-70	T-45/RC HOOD	RI-13	RADIO INSTRUMENTS THIRTEEN	1.7

Brief:

QOD

Practice:

a. Complete DD 175 with single-engine jet log
b. Checklists
c. Instrument communications
d. ATC clearance
e. ITO
f. SID
g. Groundspeed checks
h. Point-to-point
i. Wind drift correction (if required)
j. TACAN/VOR DME holding
k. Simulated emergency (airborne)
l. Localizer (LOC) back course approach (if able)
m. Missed approach
n. PAR approach
o. No gyro GCA
p. Precautionary instrument approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-74	T-45/RC HOOD	RI-14X	RADIO INSTRUMENTS FOURTEEN CHECK	1.7

Brief:

QOD

Review:

a. Complete DD 175 with single-engine jet log
b. Instrument communications
c. ATC clearance
d. ITO
e. SID
f. Groundspeed checks
g. Direct routing
h. Point-to-point
i. Wind drift correction (if required)
j. Simulated emergency (airborne)
k. TACAN/VOR DME holding
l. No gyro GCA
m. Missed approach
n. PAR approach partial panel
o. Precautionary instrument approach
p. ILS approach partial panel

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-75	OFT	FAM-01S	FAMILIARIZATION ONE SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Course rules
b. Level off/cruise
c. Area communications
d. Visual landmarks (area familiarization)
e. Turn pattern
f. Slow flight maneuver
g. Break turn stall
h. Power off stall
i. Approach turn stall and recovery
j. Accelerated stall and recovery
k. Aileron roll
l. Descents
m. Overhead pattern entry (break)
n. VFR landing pattern
o. Touch-and-go, full flaps/slats (6 desired)
p. Full-stop, full flaps/slats
q. Taxi-to-line and shutdown

Practice:

a. Checklists
b. Taxi/marshal/TO (ground OPS)
c. Radio communications
d. Aircraft taxi
e. Normal takeoff
f. Standard departure procedures

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-76	OFT	FAM-02S	FAMILIARIZATION TWO SIMULATOR	1.5

Brief:

a. QOD
b. Flap indicator failure
c. Landing gear indicator failure
d. Trim indicator failure
e. Parking brake failure

Introduce:

a. Landing attitude maneuver
b. Landing attitude stall
c. Waveoff
d. Roll-and-go, full flaps/slats

Practice:

a. Checklists
b. Start malfunctions/emergencies
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Normal takeoff
f. Standard departure procedures
g. Course rules
h. Level off/cruise
i. Turn pattern
j. Level flight accelerate/decelerate
k. Approach turn stall and recovery
l. Accelerated stall and recovery
m. Slow flight maneuver
n. Aileron roll
o. Descents
p. Overhead pattern entry (break)
q. VFR landing pattern
r. Touch-and-go, full flaps/slats (6 desired)
s. Full-stop, full flaps/slats
t. Taxi-to-line and shutdown

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-77	OFT	FAM-03S	FAMILIARIZATION THREE SIMULATOR	1.5

Brief:

a. QOD
b. Fuel flow indicator failure
c. IFF failure
d. Short/long-field arrestment
e. Lost aircraft
f. Lost communications

Introduce:

a. Check/test aircraft systems
b. Engine fire during takeoff
c. Abort situations
d. Wingover
e. Lost communication situations
f. Wheel brake failure
g. Short field arrestment

Practice:

a. Checklists
b. Start malfunctions/emergencies
c. Radio communications
d. Aircraft taxi
e. Normal takeoff
f. Standard departure procedures
g. Course rules
h. Stall series
i. Aileron roll
j. Electrical emergencies
k. Descents
l. Overhead pattern entry (break)
m. VFR landing pattern
n. Touch-and-go, full flaps/slats
o. Roll-and-go, full flaps/slats
p. Waveoff
q. Full-stop, full flaps/slats

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-78	OFT	EP-05S	EMERGENCY PROCEDURES FIVE SIMULATOR	1.5

Brief:

a. QOD
b. Brake pressure lights illuminate airborne
c. Arrested landing
d. Loss of ECS temp control
e. OBOGS malfunctions

Introduce:

a. Tailpipe overheat
b. Failure to reach line speed
c. One gear unsafe down
d. NWS caution light illuminate airborne
e. Anti-skid failure
f. Cabin pressurization failure
g. Tail hook malfunction
h. Overhead PA
i. Straight-in PA
j. Abeam PA
k. Blown tire on landing
l. Field-arrested landing with blown tire
m. Ejection (low altitude)
n. NWS failure

Practice:

a. Start malfunctions/emergencies
b. Takeoff emergencies
c. Abort situations
d. Fuel system emergencies
e. Electrical emergencies
f. Hydraulic malfunctions/emergencies
g. Trim malfunctions
h. Flight control emergencies

NOTE: Must be flown prior to FAM-05S.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-79	OFT	FAM-04S	FAMILIARIZATION FOUR SIMULATOR	1.5

Brief:

a. QOD
b. Warning/caution tones

Introduce:

a. Break turn stall and recovery
b. Barrel roll
c. Unusual attitude/recovery
d. Waypoint navigation (T-45C only)
e. Straight-in approach
f. Touch-and-go, no flaps/slats
g. Swerve after touchdown
h. Pattern stall/recovery

Practice:

a. Checklists
b. Start malfunctions/emergencies
c. Check/test aircraft systems
d. Radio communications
e. Blown tire during takeoff
f. Abort situations
g. Normal takeoff
h. Standard departure procedures
i. Course rules
j. Landing attitude stall
k. Stall series
l. Aileron roll
m. Wingover
n. Hydraulic malfunctions/emergencies
o. Lost communications
p. VFR landing pattern
q. Pattern stall/recovery
r. Touch-and-go, full flaps/slats (6 desired)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-80	OFT	FAM-05S	FAMILIARIZATION FIVE SIMULATOR	1.5

Brief:

a. QOD
b. Lost canopy
c. Go-around

Introduce:

a. Crosswind takeoff
b. Minimum radius turn
c. CNI failure (T-45C only)
d. Inadvertent IMC
e. Downwind entry
f. Crosswind landings
g. Full-stop, no flaps/slats

Practice:

a. Checklists
b. Start malfunctions/emergencies
c. Taxi/marshal/TO (ground OPS)
d. Check/test aircraft systems
e. Radio communications
f. Failure to reach line speed
g. Abort situations
h. Standard departure procedures
i. Course rules
j. Stall series
k. Accelerated stall and recovery
l. Unusual attitude/recovery
m. Aileron roll
n. Wingover
o. Barrel roll
p. Engine emergencies (compressor stall)
q. Straight-in PA
r. VFR landing pattern
s. Touch-and-go, full flaps/slats (6 desired)
t. Blown tire on landing
u. Field-arrested landing with blown tire
v. Postlanding malfunctions/emergencies

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-81	OFT	FAM-06S	FAMILIARIZATION SIX SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Squirrel cage
b. Vertical recoveries
c. IFR approach to a visual approach
d. Full-stop, no flaps/slats/speed brakes

Practice:

a. Checklists
b. Radio communications
c. Crosswind takeoff
d. Standard departure procedures
e. Course rules
f. Minimum radius turn
g. Aileron roll
h. Wingover
i. Barrel roll
j. Unusual attitude/recovery
k. VFR landing pattern
l. Touch-and-go, full flaps/slats (6 desired)
m. Touch-and-go, no flaps/slats
n. Roll-and-go, full flaps/slats
o. Crosswind landings
p. Overhead PA
q. Abeam PA
r. Emergencies (1-in flight, 1-ground)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-82	OFT	FAM-07SX	FAMILIARIZATION SEVEN SIMULATOR CHECK	1.5

Brief:

a. QOD
b. Aircraft systems

Introduce:

Suspended GINA alignment on power up (align time not counting, qual number not decrementing, zero GPS satellites) (T-45C only)

Review:

a. Checklists
b. Emergencies (in-flight and ground)
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Course rules
f. Stall series
g. Minimum radius turn
h. Squirrel cage
i. Unusual attitude/recovery
j. Aileron roll
k. Wingover
l. Barrel roll
m. Vertical recoveries
n. Recovery
o. VFR landing pattern
p. Pattern stall/recovery
q. Touch-and-go, full flaps/slats (6 desired)
r. Touch-and-go, no flaps/slats
s. Precautionary approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-83	T-45/FC	FAM-08	FAMILIARIZATION EIGHT	1.3

Brief:

a. QOD
b. Engine surge/compressor stall
c. Crosswind landing technique
d. Inadvertent engine shutdown (finger lifts)

Demonstrate:

a. Aircraft exterior preflight
b. Abeam PA
c. Postflight aircraft inspection

Practice:

a. Checklists
b. Radio communications
c. Aircraft taxi
d. Normal takeoff
e. Standard departure procedures
f. Course rules (visual landmarks)
g. Level off/cruise
h. Turn pattern
i. Level flight accelerate/decelerate
j. Stall series
k. Aileron roll
l. Descents
m. Overhead pattern entry (break)
n. VFR landing pattern
o. Touch-and-go, full flaps/slats
p. Roll-and-go, full flaps/slats
q. Waveoff
r. Simulated emergency (airborne)
s. Full-stop, full flaps/slats

NOTES:

(1) Brief should begin 2 hours prior to scheduled takeoff.

(2) Allow 45 minutes between end of brief and takeoff.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-84	T-45/FC	FAM-09	FAMILIARIZATION NINE	1.3

Brief:

a. QOD
b. Engine surge/compressor stall
c. PA configuration management

Introduce:

a. Aircraft exterior preflight
b. Postflight aircraft inspection

Practice:

a. Checklists
b. Radio communications
c. Aircraft taxi
d. Normal takeoff
e. Standard departure procedures
f. Course rules
g. Stall series
h. Aileron roll
i. Overhead pattern entry (break)
j. VFR landing pattern
k. Touch-and-go, full flaps/slats
l. Roll-and-go, full flaps/slats
m. Waveoff
n. Simulated emergency (airborne)
o. Precautionary approach (Abeam)
p. Full-stop, full flaps/slats

NOTE: Allow 45 minutes between end of brief and takeoff.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-85	T-45/FC	FAM-10	FAMILIARIZATION TEN	1.3

Brief:

QOD

Practice:

a. Checklists
b. Taxi/marshal/TO (ground OPS)
c. Radio communications
d. Normal takeoff
e. Standard departure procedures
f. Course rules
g. Stall series
h. Accelerated stall and recovery
i. Unusual attitude/recovery
j. Aileron roll
k. Straight-in approach
l. VFR landing pattern
m. Touch-and-go, full flaps/slats
n. Roll-and-go, full flaps/slats
o. Simulated emergency (airborne)
p. Precautionary approach

NOTE: Allow 45 minutes between end of brief and takeoff.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-86	T-45/FC	FAM-11	FAMILIARIZATION ELEVEN	1.3

Brief:

a. QOD
b. Electrical system
c. Pattern stall/recovery

Practice:

a. Aircraft exterior preflight
b. Checklists
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Normal takeoff
f. Standard departure procedures
g. Course rules
h. Stall series
i. Minimum radius turn
j. Wingover
k. Barrel roll
l. Squirrel cage
m. Unusual attitude/recovery
n. Simulated emergency (airborne)
o. Precautionary approach (2) (Wx permitting)
p. VFR landing pattern
q. Touch-and-go, full flaps/slats (6 desired)
r. Postflight aircraft inspection

NOTE: Student must have flown one straight-in PA, one abeam PA and one overhead PA prior to completion of FAM-12.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-87	T-45/FC	FAM-12	FAMILIARIZATION TWELVE	1.3

Brief:

a. QOD
b. Hydraulic system

Introduce:

a. Crosswind landing to roll-and-go
b. Roll-and-go, no flaps/slats

Practice:

a. Aircraft exterior preflight
b. Checklists
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Normal takeoff
f. Standard departure procedures
g. Course rules
h. Stall series
i. Aerobatics
j. Vertical recoveries
k. Recovery
l. Precautionary approach(es)
m. Simulated emergency (airborne)
n. VFR landing pattern
o. Touch-and-go, full flaps/slats (6 desired)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-88	T-45/FC	FAM-13	FAMILIARIZATION THIRTEEN	1.3

Brief:

a. QOD
b. Engine/accessory gearbox

Introduce:

Precautionary approach (full-stop)

Practice:

a. Aircraft exterior preflight
b. Checklists
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Course rules
f. Stall series
g. Aerobatics (if done)
h. Downwind entry
i. VFR landing pattern
j. Touch-and-go, full flaps/slats (6 desired)
k. Roll-and-go, no flaps/slats
l. Precautionary approach (2 desired)
m. Simulated emergency (airborne)
n. Crosswind landing to roll-and-go, full flaps (optional)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-89	T-45/FC	FAM-14	FAMILIARIZATION FOURTEEN	1.0

Brief:

a. QOD
b. ECS
c. NWS/launch bar
d. Canopy/fog condensation

Demonstrate:

Half-flap touch-and-go

Introduce:

a. Half-flap touch-and-go
b. No HUD touch-and-go

Practice:

a. Aircraft exterior preflight
b. Checklists
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Course rules
f. Field entry (break, Wx permitting)
g. VFR landing pattern
h. Touch-and-go, full flaps/slats (6 desired)
i. Roll-and-go, full flaps/slats
j. Precautionary approach (2 desired, Wx permitting)

NOTE: This flight may be flown anytime after FAM-12.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-90	T-45/FC	FAM-15	FAMILIARIZATION FIFTEEN	1.3

Brief:

a. QOD
b. Fuel system

Introduce:

a. Recovery (RTB without TACAN or waypoint) (Wx permitting)
b. GINA in-flight alignment (T-45C ONLY)

Practice:

a. Aircraft exterior preflight
b. Checklists
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Course rules
f. Stall series
g. Aerobatics (if done)
h. Vertical recoveries
i. VFR landing pattern
j. Touch-and-go, full flaps/slats (6 desired)
k. No HUD touch-and-go
l. Simulated emergency (airborne)
m. Precautionary approach (2 desired, Wx permitting)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-91	T-45/FC	FAM-16	FAMILIARIZATION SIXTEEN	1.3

Brief:

a. QOD
b. Aircraft systems

Practice:

a. Aircraft exterior preflight
b. Checklists
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Course rules
f. Stall series
g. Minimum radius turn
h. Wingover
i. Barrel roll
j. Squirrel cage
k. Vertical recoveries
l. Unusual attitude/recovery
m. Recovery
n. VFR landing pattern
o. Touch-and-go, full flaps/slats (6 desired)
p. Touch-and-go, no flaps/slats
q. Precautionary approach (2 desired)
r. Simulated emergency (airborne)

NOTE: Student shall have a minimum of 50 FCLP-type landings at the completion of FAM-17. If this requirement is not met, a pattern warmup shall be awarded prior to FAM-18X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-94	OFT	OCF-01S	OUT-OF-CONTROL FLIGHT ONE SIMULATOR	1.5

Brief:

a. QOD
b. Runaway trim
c. Engine flameout
d. Ejection situations
e. Locked-in compressor stall
f. Airstart
g. NATOPS chapter II

Introduce:

a. High AOA/deep stall investigation/ rudder-induced departure
b. Low airspeed recovery (70 degrees noseup)
c. Low airspeed recovery (110 degrees noseup)
d. Lateral stick adverse yaw departure
e. Stuck throttle approach

Practice:

a. Airstart
b. Straight-in PA
c. VFR landing pattern
d. Touch-and-go, full flaps/slats
e. Touch-and-go, no flaps/slats
f. Blown tire on landing
g. Field-arrested landing with blown tire
h. Full-stop landing
i. Pattern stall/recovery

NOTES:

(1) Two (2) stuck throttle approaches required (high, middle, or low).

(2) Must be flown after FAM-12, prior to FAM-18X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-95	T-45/FC	OCF-02	OUT-OF-CONTROL FLIGHT TWO	0.8

Brief:

a. QOD
b. NATOPS chapter II

Practice:

a. High AOA/deep stall investigation/ rudder-induced departure
b. Low airspeed recovery (70 degrees noseup)
c. Low airspeed recovery (110 degrees noseup)
d. Lateral stick adverse yaw departure
e. Precautionary approach
f. VFR landing pattern
g. Touch-and-go, full flaps/slats
h. Touch-and-go, no flaps/slats
i. Roll-and-go, full flaps/slats
j. Crosswind landings (conditions permitting)
k. Full-stop landing

NOTES:

(1) Must be flown after FAM-12, prior to FAM-18X.

(2) "Headwork" and "Procedures" are the only graded items.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-96	OFT	EP-06SX	EMERGENCY PROCEDURES SIX SIMULATOR CHECK	1.3

Brief:

a. QOD
b. Lost aircraft situations
c. Start sequence

Review:

a. Start malfunctions/emergencies
b. Taxi emergencies
c. Takeoff emergencies
d. Engine emergencies
e. Fuel system emergencies
f. Electrical emergencies
g. ECS malfunctions/emergencies
h. Hydraulic malfunctions/emergencies
i. Flight control emergencies
j. GINA failures/NGS/SAHRS
k. Ejection (low altitude)
l. Blown tire on landing
m. Approach/landing emergencies
n. Postlanding malfunctions/emergencies

NOTE: Must be flown after FAM-12, prior to FAM-18X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-97	T-45/FC	FAM-17	FAMILIARIZATION SEVENTEEN	1.0

Brief:

a. QOD
b. ECS
c. NWS/launch bar
d. Canopy/fog condensation

Practice:

a. No HUD touch-and-go
b. Aircraft exterior preflight
c. Checklists
d. Taxi/marshal/TO (ground OPS)
e. Radio communications
f. Course rules
g. Field entry (break Wx permitting)
h. VFR landing pattern
i. Touch-and-go, full flaps/slats (6 desired)
j. Roll-and-go, full flaps/slats
k. Precautionary approach (2 desired, Wx permitting)

NOTE: This flight may be flown anytime after FAM-12.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-101	T-45/FC	FAM-18X	FAMILIARIZATION EIGHTEEN CHECK	1.3

Brief:

QOD

Review:

a. Aircraft exterior preflight
b. Checklists
c. Taxi/marshal/TO (ground OPS)
d. Radio communications
e. Course rules
f. Stall series
g. Minimum radius turn
h. Wingover
i. Barrel roll
j. Squirrel cage
k. Vertical recoveries
l. Unusual attitude/recovery
m. Overhead pattern entry (break)
n. VFR landing pattern
o. Touch-and-go, full flaps/slats (6 desired)
p. Touch-and-go, no flaps/slats
q. Precautionary approaches
r. Simulated emergency (airborne)

NOTES:

(1) Jacket review required.

(2) FAM-18X shall be flown with visual reference to the ground.

(3) EP-06SX, OCF-02, Open and Closed book NATOPS exams must be completed prior to brief.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-102	T-45/ SOLO	FAM-19	FAMILIARIZATION NINETEEN	1.2

Brief:

a. QOD
b. Solo brief
c. Lost aircraft situations

Practice:

a. Power off stall
b. Landing attitude maneuver
c. Landing attitude stall
d. Wingover
e. Barrel roll
f. Squirrel cage
g. Overhead pattern entry (break)
h. VFR landing pattern
i. Touch-and-go, full flaps/slats (6 desired)
j. Abeam PA (Wx permitting)

NOTES:

(1) Only “Headwork” will be graded by a qualified instructor.

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

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
02-103	T-45/FC	FAM-20	FAMILIARIZATION TWENTY	0.7

Brief:

QOD

Practice:

a. Recovery
b. Touch-and-go, full flaps/slats
c. Touch-and-go, no flaps/slats (if done)
d. Roll-and-go, full flaps/slats
e. Full-stop landing

NOTE: May be flown any time after FAM-19 and prior to FCLP-02.

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MODULE 03

INSTRUMENTS, FORMATION, AND NIGHT FAMILIARIZATION

OBJECTIVES:

1. Airways Navigation Stage. Enable the student to navigate a jet aircraft from takeoff to landing via airways and in terminal areas under instrument flight rules while complying with Air Traffic Control regulations. It is highly recommended that AN flights be conducted outside the local flying area to the maximum extent possible.

Includes: Airways Navigation Flight Procedures (ANFP-01 and ANFP-02X), Airways Navigation simulators and flights (AN-01S through AN-11X), and Emergency Procedures simulator (EP-07S).

NOTE 1: Two out-and-in flights (outside the local area) are required in the AN/IR syllabus prior to IR-07X. A cross-country with at least four legs may be substituted for this requirement.

NOTE 2: EP-07S shall be complete prior to AN-07.

NOTE 3: Jacket review required prior to check flight.

2. Formation Stage. Develop basic section and division formation flying skills and provide additional landing practice.

Includes: Formation Flight Procedures (FFP-01 through FFP-08X), Formation simulators and flights (FORM-01S through FORM-25), and Emergency Procedures simulator (EP-08S).

NOTE 1: EP-08S shall be flown after FORM-01S and prior to FORM-11 (solo).

NOTE 2: Student must complete two takeoff running rendezvous and two section breaks at the field prior to FORM-10X.

NOTE 3: FORM-13 and FORM-14 may be flown anytime after FORM-12, prior to the end of stage.

NOTE 4: Student must have one takeoff running rendezvous and one division break at the field prior to FORM-24X.

NOTE 5: Division FORM may be completed as three-plane flights. However, either FORM-22, FORM-23, or FORM-24X must be flown as a four-plane flight.

NOTE 6: Jacket review required prior to check flights.

3. Night Familiarization Stage. Develop the SNA's night flying ability with emphasis on the instrument aspects of night flying and night landing techniques.

Includes: Night Familiarization Flight Procedures (NFAMFP-01 through NFAMFP-03X), and Night Familiarization simulator and flights (NFAM-01S through NFAM-04).

NOTE 1: A day or night front seat landing within the previous day is a prerequisite for night solo flight.

NOTE 2: All night flights shall take off no earlier than 30 minutes after official sunset.

NOTE 3: Night solo flights require an operating radar altimeter.

NOTE 4: Jacket review required prior to check flight.

NOTE 5: NFAM route must be utilized.

NOTE 6: A minimum of ten landings are required prior to NFAM-04.

4. Instrument Rating Stage. Enable the student to navigate a jet aircraft from takeoff to landing via airways and in terminal areas under instrument flight rules while complying with Air Traffic Control regulations. Successful completion of this stage will warrant issuance of a Naval standard instrument rating.

Includes: Instrument Rating Flight Procedures (IRFP-01 through IRFP-04X), and Instrument Rating simulators and flights (IR-01S through IR-07X).

NOTE 1: Two out-and-in flights (outside the local area) are required in the AN/IR syllabus prior to IR-07X. A cross-country with at least four legs may be substituted for this requirement.

NOTE 2: Jacket review and successful completion of instrument examinations are required within 60 days prior to IR-07X. IRFP-03X is a paper/pencil open-book test and IRFP-04X is a CAI examination.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-01	MIL	ANFP-01	AIRWAYS NAVIGATION FLIGHT PROCEDURES	4.0
03-02	CAI	ANFP-02X	AIRWAYS NAVIGATION STAGE EXAMINATION	1.0
03-03	IFT/OFT	AN-01S	AIRWAYS NAVIGATION ONE SIMULATOR	1.5
03-04	OFT	AN-02S	AIRWAYS NAVIGATION TWO SIMULATOR	1.5
03-05	IFT/OFT	AN-03S	AIRWAYS NAVIGATION THREE SIMULATOR	1.5
03-06	OFT	AN-04S	AIRWAYS NAVIGATION FOUR SIMULATOR	1.5
03-07	OFT	AN-05S	AIRWAYS NAVIGATION FIVE SIMULATOR	1.5
03-08	OFT	AN-06SX	AIRWAYS NAVIGATION SIX SIMULATOR CHECK	1.5
03-09	IFT/OFT	EP-07S	EMERGENCY PROCEDURES SEVEN SIMULATOR	1.3
03-10	T-45/RC HOOD	AN-07	AIRWAYS NAVIGATION SEVEN	1.6
03-11	T-45/RC HOOD	AN-08	AIRWAYS NAVIGATION EIGHT	1.6
03-12	T-45/RC HOOD	AN-09	AIRWAYS NAVIGATION NINE	1.7
03-13	T-45/RC HOOD	AN-10	AIRWAYS NAVIGATION TEN	1.6
03-14	T-45/RC HOOD	AN-11X	AIRWAYS NAVIGATION ELEVEN CHECK	1.6
03-15	MIL	FFP-01	FORMATION MARSHAL, TAKEOFF RENDEZVOUS, DEPARTURE/CLIMBOUT	1.0
03-16	MIL	FFP-02	SECTION PARADE FORMATION	1.0

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-17	MIL	FFP-03	SECTION FORMATION RECOVERY, APPROACHES, LANDING CONFIGURATION	0.7
03-18	MIL	FFP-04	FORMATION EMERGENCIES	1.0
03-19	MIL	FFP-05	FORMATION SECTION CRUISE/ COLUMN	0.8
03-20	CAI	FFP-06X	FORMATION STAGE EXAMINATION	1.0
03-21	MIL	FFP-07	DIVISION PARADE FORMATION	1.5
03-22	CAI	FFP-08X	FORMATION STAGE EXAMINATION	1.0
03-23	OFT	FORM-01S	FORMATION ONE SIMULATOR	1.5
03-24	OFT	FORM-02S	FORMATION TWO SIMULATOR	1.5
03-25	OFT	FORM-03S	FORMATION THREE SIMULATOR	1.5
03-26	OFT	FORM-04S	FORMATION FOUR SIMULATOR	1.5
03-27	T-45/FC	FORM-05	FORMATION FIVE	1.5
03-28	T-45/FC	FORM-06	FORMATION SIX	1.5
03-29	OFT	EP-08S	EMERGENCY PROCEDURES EIGHT SIMULATOR	1.3
03-30	T-45/FC	FORM-07	FORMATION SEVEN	1.5
03-31	T-45/FC	FORM-08	FORMATION EIGHT	1.5
03-32	T-45/FC	FORM-09	FORMATION NINE	1.5
03-33	T-45/FC	FORM-10X	FORMATION TEN CHECK	1.5
03-34	T-45/ SOLO	FORM-11	FORMATION ELEVEN	1.4
03-35	T-45/ SOLO	FORM-12	FORMATION TWELVE	1.4
03-36	T-45/FC	FORM-13	FORMATION THIRTEEN (LEAD)	1.5
03-37	T-45/FC	FORM-14	FORMATION FOURTEEN (LEAD)	1.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-38	T-45/FC	FORM-15	FORMATION FIFTEEN	1.5
03-39	T-45/FC	FORM-16	FORMATION SIXTEEN	1.4
03-40	T-45/FC	FORM-17	FORMATION SEVENTEEN	1.4
03-41	T-45/FC	FORM-18	FORMATION EIGHTEEN	1.4
03-42	T-45/FC	FORM-19X	FORMATION NINETEEN CHECK	1.4
03-43	T-45/ SOLO	FORM-20	FORMATION TWENTY	1.3
03-44	T-45/FC	FORM-21	FORMATION TWENTY-ONE	1.5
03-45	T-45/FC	FORM-22	FORMATION TWENTY-TWO	1.5
03-46	MIL	NFAMFP-01	NIGHT FAMILIARIZATION	1.3
03-47	MIL	NFAMFP-02	NIGHT EMERGENCY PROCEDURES	1.2
03-48	CAI	NFAMFP-03X	NIGHT FAMILIARIZATION STAGE EXAMINATION	1.0
03-49	T-45/FC	FORM-23	FORMATION TWENTY-THREE	1.5
03-50	T-45/FC	FORM-24X	FORMATION TWENTY-FOUR CHECK	1.5
03-51	T-45/ SOLO	FORM-25	FORMATION TWENTY-FIVE	1.4
03-52	OFT	NFAM-01S	NIGHT FAMILIARIZATION ONE SIMULATOR	1.5
03-53	T-45/FC	NFAM-02	NIGHT FAMILIARIZATION TWO	1.5
03-54	T-45/FC	NFAM-03X	NIGHT FAMILIARIZATION THREE CHECK	1.5
03-55	T-45/ SOLO	NFAM-04	NIGHT FAMILIARIZATION FOUR	1.3
03-56	CAI	IRFP-01	METRO REVIEW	1.0
03-57	MIL	IRFP-02	IR REVIEW	2.0
03-58	PENCIL	IRFP-03X	INSTRUMENT RATING OPEN-BOOK EXAMINATION	1.0

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-59	CAI	IRFP-04X	INSTRUMENT RATING CLOSED-BOOK EXAMINATION	1.0
03-60	IFT/OFT	IR-01S	INSTRUMENT RATING ONE SIMULATOR	1.5
03-61	OFT	IR-02S	INSTRUMENT RATING TWO SIMULATOR	1.5
03-62	OFT	IR-03S	INSTRUMENT RATING THREE SIMULATOR	1.5
03-63	OFT	IR-04S	INSTRUMENT RATING FOUR SIMULATOR	1.5
03-64	T-45/RC HOOD	IR-05	INSTRUMENT RATING FIVE	1.7
03-65	T-45/RC HOOD	IR-06	INSTRUMENT RATING SIX	1.7
03-66	T-45/RC HOOD	IR-07X	INSTRUMENT RATING SEVEN CHECK	1.7

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-03	IFT/OFT	AN-01S	AIRWAYS NAVIGATION ONE SIMULATOR	1.5

Brief:

a. QOD
b. VOR holding

Introduce:

a. Weather criteria
b. Enroute descent

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. Instrument communications
d. SID
e. Fuel system emergencies
f. Lost communications
g. VOR holding
h. VOR penetration/approach
i. Missed approach
j. ASR approach
k. ILS approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-04	OFT	AN-02S	AIRWAYS NAVIGATION TWO SIMULATOR	1.5

Brief:

QOD

Practice:

a. Weather criteria
b. Complete DD 175 with single-engine jet log
c. ATC clearance
d. Instrument communications
e. Takeoff clearance
f. SID
g. Hydraulic emergencies
h. Lost communications
i. CDI failure
j. Route/destination change
k. TACAN/VOR DME holding
l. TACAN/VOR DME approach partial panel
m. Missed approach
n. ILS approach partial panel
o. PAR approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-05	IFT/OFT	AN-03S	AIRWAYS NAVIGATION THREE SIMULATOR	1.5

Brief:

QOD

Introduce:

Erroneous GINA data (T-45C only)

Practice:

a. Weather criteria
b. Complete DD 175 with single-engine jet log
c. ATC clearance
d. Waypoint navigation (T-45C only)
e. Instrument communications
f. SID
g. Flight instrument malfunctions
h. Flight control emergencies
i. Lost communications
j. VOR holding
k. VOR approach partial panel
l. Missed approach
m. Enroute descent
n. ASR approach
o. No gyro PAR

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-06	OFT	AN-04S	AIRWAYS NAVIGATION FOUR SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Unfamiliar field ground OPS/taxi
b. STAR
c. RVSM

Practice:

a. Weather criteria
b. Complete DD 175 with single-engine jet log
c. Start malfunctions/emergencies
d. ATC clearance
e. Instrument communications
f. SID
g. Engine emergencies
h. Lost communications
i. Route/destination change
j. Point-to-point
k. TACAN/VOR DME holding
l. TACAN/VOR DME approach partial panel
m. Missed approach
n. Enroute descent
o. ILS approach
p. PAR approach partial panel

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-07	OFT	AN-05S	AIRWAYS NAVIGATION FIVE SIMULATOR	1.5

Brief:

a. QOD
b. Multi-function display failure (T-45C only)
c. Slow loss of hydraulic pressure (HYD 1)

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. Instrument communications
d. SID
e. Lost communications
f. STAR
g. Point-to-point
h. TACAN/VOR DME holding
i. TACAN/VOR DME approach
j. Missed approach
k. ILS/PAR approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-08	OFT	AN-06SX	AIRWAYS NAVIGATION SIX SIMULATOR CHECK	1.5

Brief:

QOD

Review:

a. Complete DD 175 with single-engine jet log
b. Start malfunctions/emergencies
c. ATC clearance
d. Instrument communications
e. SID
f. In-flight emergencies
g. Route/destination change
h. Point-to-point
i. TACAN/VOR DME holding
j. TACAN/VOR DME approach
k. Missed approach
l. STAR
m. Enroute descent
n. ILS approach
o. Partial panel approach(es)
p. No gyro GCA

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-09	IFT/OFT	EP-07S	EMERGENCY PROCEDURES SEVEN SIMULATOR	1.3

Brief:

QOD

Practice:

a. Start malfunctions/emergencies
b. Takeoff emergencies
c. Engine flameout
d. Electrical emergencies
e. HYD 2 EDP failure
f. CONTR AUG failure
g. Runaway stabilator trim
h. Engine fire, secondary indications
i. Lost communications
j. Ejection
k. Main/nose gear unsafe down
l. Brake accumulator failure
m. Postlanding emergencies

NOTE: This event shall be completed prior to AN-07.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-10	T-45/RC HOOD	AN-07	AIRWAYS NAVIGATION SEVEN	1.6

Brief:

a. QOD
b. In-flight emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. Instrument communications
d. SID
e. Route/destination change (if done)
f. Point-to-point
g. TACAN/VOR DME holding
h. TACAN/VOR DME approach
i. STAR (if done)
j. Missed approach
k. Enroute descent
l. ASR approach
m. Minimum fuel/emergency fuel instrument approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-11	T-45/RC HOOD	AN-08	AIRWAYS NAVIGATION EIGHT	1.6

Brief:

a. QOD
b. In-flight emergencies
c. Lost communications

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. Instrument communications
d. SID
e. Route/destination change (if done)
f. Enroute descent
g. ILS approach partial panel
h. STAR (if done)
i. Missed approach
j. PAR approach
k. No gyro GCA
l. RVSM (if done)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-12	T-45/RC HOOD	AN-09	AIRWAYS NAVIGATION NINE	1.7

Brief:

a. QOD
b. In-flight emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. Instrument communications
d. SID
e. Route/destination change (if done)
f. Point-to-point
g. STAR (if done)
h. TACAN/VOR DME holding
i. TACAN/VOR approach partial panel
j. Missed approach
k. Enroute descent
l. ILS approach
m. PAR approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-13	T-45/RC HOOD	AN-10	AIRWAYS NAVIGATION TEN	1.6

Brief:

a. QOD
b. In-flight emergencies

Introduce:

a. Transition full flaps off an instrument approach
b. Night landing at field without Fresnel lens (if able)

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. Instrument communications
d. SID
e. Route/destination change (if done)
f. STAR (if done)
g. VOR holding
h. VOR penetration/approach
i. Missed approach
j. Enroute descent
k. ASR approach partial panel
l. ILS approach partial panel
m. RVSM (if done)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-14	T-45/RC HOOD	AN-11X	AIRWAYS NAVIGATION ELEVEN CHECK	1.6

Brief:

a. QOD
b. In-flight emergencies
c. Lost communications

Review:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. Instrument communications
d. SID
e. Route/destination change (if done)
f. STAR (if done)
g. Point-to-point
h. TACAN/VOR DME holding
i. Precision approach
j. Non-precision approach
k. Missed approach
l. Minimum fuel/emergency fuel instrument approach

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-23	OFT	FORM-01S	FORMATION ONE SIMULATOR	1.5

Brief:

a. QOD
b. Underrun

Introduce:

a. Formation ground OPS
b. Formation communications
c. Marshal/hold short
d. Interval takeoff
e. Running rendezvous
f. Parade position
g. Parade turns into
h. Parade turns away
i. Crossunder
j. Breakup and rendezvous
k. Section break

Practice:

Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-24	OFT	FORM-02S	FORMATION TWO SIMULATOR	1.5

Brief:

a. QOD
b. Underrun
c. Lead change

Introduce:

TACAN rendezvous

Practice:

a. Formation ground OPS
b. Formation communications
c. Marshal/hold short
d. Individual takeoff
e. Running rendezvous
f. Parade position
g. Parade turns into
h. Parade turns away
i. Crossunder
j. Breakup and rendezvous
k. Section break
l. Touch-and-go landings
m. Postlanding emergencies

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-25	OFT	FORM-03S	FORMATION THREE SIMULATOR	1.5

Brief:

QOD

Introduce:

a. IFR parade
b. Section approach
c. Section missed approach

Practice:

a. Formation communications
b. Interval takeoff
c. Running rendezvous
d. Parade turns into
e. Parade turns away
f. Crossunder
g. Breakup and rendezvous (6 x 250 desired)
h. Section break
i. Touch-and-go landings
j. Operational emergency
k. Precautionary approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-26	OFT	FORM-04S	FORMATION FOUR SIMULATOR	1.5

Brief:

QOD

Introduce:

a. Takeoff/joinup (section, interval, TACAN)
b. Cruise position
c. Cruise maneuvering
d. Column/tail chase
e. Running rendezvous (altitude)
f. Section circling approach
g. Formation abort

Practice:

a. Formation communications
b. IFR parade
c. Parade position
d. Crossunder
e. Breakup and rendezvous (2 x 250/2 x 300)
f. Touch-and-go landings
g. Pattern stall/recovery

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-27	T-45/FC	FORM-05	FORMATION FIVE	1.5

Brief:

QOD

Demonstrate:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Running rendezvous (Wx permitting)
e. Parade position
f. Parade turns into
g. Parade turns away
h. Crossunder
i. Lead change
j. Breakup and rendezvous (3 Lead/3 Wing)
k. Underrun
l. Section break (Wx permitting)

Practice:

Touch-and-go landings

NOTES:

(1) Need two takeoff running rendezvous and two section breaks at the field prior to FORM-10X.

(2) Shared training flight requires 2 students and 2 IPs. Swap lead and redo conduct.

(3) FORM-05 should be flown with another FORM-05 event.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-28	T-45/FC	FORM-06	FORMATION SIX	1.5

Brief:

QOD

Introduce:

a. Running rendezvous (Wx permitting)
b. Breakup and rendezvous (1)

Practice:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Parade position
e. Parade turns into
f. Parade turns away
g. Crossunder
h. Lead change
i. Breakup and rendezvous (6 X 250 desired)
j. Underrun
k. Section break (Wx permitting)
l. Touch-and-go landings

NOTE: Need two takeoff running rendezvous and two section breaks at the field prior to FORM-10X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-29	OFT	EP-08S	EMERGENCY PROCEDURES EIGHT SIMULATOR	1.3

Brief:

a. QOD
b. Midair collision
c. SAR situations
d. Form lost sight procedure

Introduce:

Structural failure/damage

Practice:

a. Formation abort
b. Start malfunctions/emergencies
c. In-flight emergencies
d. ECS emergencies
e. Precautionary approach
f. NWS failure
g. Anti-skid failure
h. Pattern stall/recovery
i. Ejection

NOTE: Shall be flown after FORM-05S and prior to FORM-11 (solo).

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-30	T-45/FC	FORM-07	FORMATION SEVEN	1.5

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Running rendezvous/TACAN rendezvous
e. Parade position
f. Parade turns into
g. Parade turns away
h. Crossunder
i. Breakup and rendezvous (6 x 250 desired)
j. Underrun
k. Lead change
l. Section break (Wx permitting)
m. Touch-and-go landings

NOTE: Need two takeoff running rendezvous and two section breaks at the field prior to FORM-10X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-31	T-45/FC	FORM-08	FORMATION EIGHT	1.5

Brief:

QOD

Introduce:

a. IFR parade
b. Section approach
c. Section missed approach

Practice:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Running rendezvous
e. Parade turns into
f. Parade turns away
g. Crossunder
h. Breakup and rendezvous (5 x 250 desired)
i. TACAN rendezvous
j. Underrun
k. Lead change
l. Section break
m. Precautionary approach (Wx permitting)
n. Touch-and-go landings

NOTE: Need two takeoff running rendezvous and two section breaks at the field prior to FORM-10X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-32	T-45/FC	FORM-09	FORMATION NINE	1.5

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Running rendezvous
e. Parade turns into
f. Parade turns away
g. IFR parade
h. Crossunder
i. Breakup and rendezvous (5 x 250 desired)
j. TACAN rendezvous
k. Lead change
l. Section missed approach
m. Section break
n. Touch-and-go landings

NOTE: Need two takeoff running rendezvous and two section breaks at the field prior to FORM-10X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-33	T-45/FC	FORM-10X	FORMATION TEN CHECK	1.5

Brief:

QOD

Review:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Running rendezvous
e. Parade turns into
f. Parade turns away
g. IFR parade
h. Crossunder
i. Breakup and rendezvous (5 x 250 desired)
j. Underrun
k. TACAN rendezvous
l. Lead change
m. Section approach
n. Section missed approach
o. Section break
p. Touch-and-go landings

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-34	T-45/ SOLO	FORM-11	FORMATION ELEVEN	1.4

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff to running rendezvous
d. TACAN rendezvous
e. Parade position
f. Crossunder
g. Breakup and rendezvous (6 x 250 desired)
h. Lead change
i. Section break
j. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-35	T-45/ SOLO	FORM-12	FORMATION TWELVE	1.4

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Individual takeoff
d. TACAN rendezvous
e. Parade position
f. Crossunder
g. Breakup and rendezvous (6 x 250 desired)
h. Lead change
i. Section break
j. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-36	T-45/FC	FORM-13	FORMATION THIRTEEN (LEAD)	1.5

Brief:

a. QOD
b. Underrun
c. Flight lead responsibilities

Introduce:

Lead

Practice:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Parade position
e. Breakup and rendezvous (2 X 250 desired)
f. Lead change
g. Recovery
h. Landings

NOTES:

(1) Flight can be flown with any basic FORM flight.

(2) Student shall brief flight conduct.

(3) May be flown anytime after FORM-12, prior to the end of stage.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-37	T-45/FC	FORM-14	FORMATION FOURTEEN (LEAD)	1.5

Brief:

a. QOD
b. Underrun

Practice:

a. Formation ground OPS
b. Formation communications
c. Interval takeoff
d. Parade position
e. Breakup and rendezvous (2 X 250 desired)
f. Lead change
g. Recovery
h. Landings

NOTES:

(1) Flight can be flown with any basic FORM flight.

(2) Student shall brief flight conduct.

(3) May be flown anytime after FORM-13 prior to the end of stage.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-38	T-45/FC	FORM-15	FORMATION FIFTEEN	1.5

Brief:

QOD

Demonstrate:

Cruise aerobatics

Introduce:

a. Running rendezvous (altitude)
b. Cruise position
c. Cruise maneuvering
d. Cruise aerobatics
e. Student lead to section break

Practice:

a. Formation ground OPS
b. Formation communications
c. Takeoff/joinup (section, interval, TACAN)
d. IFR parade
e. Parade position
f. Crossunder
g. Breakup and rendezvous (2 x 250/2 x 300)
h. Underrun
i. Lead change
j. Section break
k. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-39	T-45/FC	FORM-16	FORMATION SIXTEEN	1.4

Brief:

QOD

Introduce:

a. Column
b. Tail chase (fuel permitting)
c. Student lead section approach

Practice:

a. Formation ground OPS
b. Formation communications
c. Takeoff/joinup (section, interval, TACAN)
d. IFR parade
e. Parade position
f. Crossunder
g. Breakup and rendezvous (2 x 250/2 x 300)
h. Cruise position
i. Cruise maneuvering
j. Cruise aerobatics
k. Lead change
l. Section approach
m. Section missed approach
n. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-40	T-45/FC	FORM-17	FORMATION SEVENTEEN	1.4

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Takeoff/joinup (section, interval, TACAN)
d. IFR parade
e. Parade position
f. Crossunder
g. Breakup and rendezvous (2 x 250/2 x 300)
h. Cruise position
i. Cruise maneuvering
j. Cruise aerobatics
k. Column
l. Tail chase (fuel permitting)
m. Lead change
n. Section approach
o. Section missed approach
p. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-41	T-45/FC	FORM-18	FORMATION EIGHTEEN	1.4

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Takeoff/joinup (section, interval, TACAN)
d. IFR parade
e. Parade position
f. Crossunder
g. Breakup and rendezvous (2 x 250/2 x 300)
h. Underrun
i. Cruise position
j. Cruise maneuvering
k. Cruise aerobatics
l. Column
m. Tail chase (fuel permitting)
n. Lead change
o. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-42	T-45/FC	FORM-19X	FORMATION NINETEEN CHECK	1.4

Brief:

QOD

Review:

a. Formation ground OPS
b. Formation communications
c. Takeoff/joinup (section, interval, TACAN)
d. IFR parade
e. Parade position
f. Crossunder
g. Breakup and rendezvous (2 x 250/2 x 300)
h. Underrun
i. Cruise position
j. Cruise maneuvering
k. Cruise aerobatics
l. Column
m. Lead change
n. Section approach
o. Section missed approach
p. Section break
q. Precautionary approach
r. Touch-and-go landings

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-43	T-45/ SOLO	FORM-20	FORMATION TWENTY	1.3

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Takeoff/joinup (section, interval, TACAN)
d. IFR parade
e. Parade position
f. Crossunder
g. Breakup and rendezvous (2 x 250/2 x 300 desired)
h. Cruise position
i. Cruise maneuvering
j. Lead change
k. Section approach
l. Section break
m. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-44	T-45/FC	FORM-21	FORMATION TWENTY-ONE	1.5

Brief:

QOD

Introduce:

a. Division ground OPS
b. Visual communications
c. Interval takeoff
d. Division rendezvous
e. Section crossunder
f. Balanced parade
g. Balanced parade turns into
h. Balanced parade turns away
i. Breakup and rendezvous
j. Division cruise
k. Shuffle division
l. Division break

Practice:

a. Formation communications
b. Touch-and-go landings

NOTE: Need one takeoff running rendezvous and one division break at the field prior to FORM-24X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-45	T-45/FC	FORM-22	FORMATION TWENTY-TWO	1.5

Brief:

QOD

Practice:

a. Division ground OPS
b. Formation communications
c. Visual communications
d. Interval takeoff
e. Division rendezvous
f. Section crossunder
g. Balanced parade
h. Balanced parade turns into
i. Balanced parade turns away
j. Breakup and rendezvous
k. Division cruise
l. Shuffle division
m Division break
n. Touch-and-go landings

NOTE: Need one takeoff running rendezvous and one division break at the field prior to FORM-24X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-49	T-45/FC	FORM-23	FORMATION TWENTY-THREE	1.5

Brief:

QOD

Practice:

a. Division ground OPS
b. Formation communications
c. Visual communications
d. Interval takeoff
e. Division rendezvous
f. Section crossunder
g. Balanced parade
h. Balanced parade turns into
i. Balanced parade turns away
j. Breakup and rendezvous
k. Division cruise
l. Shuffle division
m. Division break
n. Touch-and-go landings

NOTE: Need one takeoff running rendezvous and one division break at the field prior to FORM-24X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-50	T-45/FC	FORM-24X	FORMATION TWENTY-FOUR CHECK	1.5

Brief:

QOD

Review:

a. Division ground OPS
b. Formation communications
c. Interval takeoff
d. Division rendezvous
e. Section crossunder
f. Balanced parade
g. Balanced parade turns into
h. Balanced parade turns away
i. Breakup and rendezvous
j. Division cruise
k. Shuffle division
l. Division break
m. Touch-and-go landings

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-51	T-45/ SOLO	FORM-25	FORMATION TWENTY-FIVE	1.4

Brief:

QOD

Practice:

a. Division ground OPS
b. Formation communications
c. Interval takeoff
d. Division rendezvous
e. Section crossunder
f. Balanced parade
g. Breakup and rendezvous
h. Division cruise
i. Shuffle division
j. Division break
k. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-52	OFT	NFAM-01S	NIGHT FAMILIARIZATION ONE SIMULATOR	1.5

Brief:

a. QOD
b. Lost aircraft situations

Introduce:

a. Aircraft taxi
b. Night abort
c. Visual navigation
d. Dead reckoning navigation
e. Recovery to pattern
f. Cockpit light failure
g. Trim malfunction in landing pattern
h. Swerve on touchdown
i. Touch-and-go, full flaps/slats
j. Touch-and-go, no flaps/slats
k. Roll-and-go, full flaps/slats
l. Full-stop, full flaps/slats

Practice:

a. Navigation chart for route of flight
b. Single-engine jet log
c. Radio communications
d. Total electrical failure
e. Instrument precautionary approach
f. Inadvertent IMC
g. Lost communications
h. Pattern stall/recovery

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-53	T-45/FC	NFAM-02	NIGHT FAMILIARIZATION TWO	1.5

Brief:

QOD

Introduce:

Aircraft exterior preflight

Practice:

a. Instrument precautionary approach
b. Navigation chart for route of flight
c. Single-engine jet log
d. Radio communications
e. Aircraft taxi
f. Visual navigation
g. Dead reckoning navigation
h. Recovery
i. Touch-and-go, full flaps/slats
j. Touch-and-go, no flaps/slats
k. Full-stop, full flaps/slats

NOTES:

(1) Student must perform one night break on either NFAM-02 or NFAM-03X.

(2) A minimum of ten landings are required prior to NFAM-04.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-54	T-45/FC	NFAM-03X	NIGHT FAMILIARIZATION THREE CHECK	1.5

Brief:

QOD

Review:

a. Navigation chart for route of flight
b. Single-engine jet log
c. Aircraft exterior preflight
d. Radio communications
e. Aircraft taxi
f. Visual navigation
g. Dead reckoning navigation
h. Recovery
i. Touch-and-go, full flaps/slats
j. Touch-and-go, no flaps/slats (if done)
k. Full-stop, full flaps/slats

NOTES:

(1) Jacket review required.

(2) Student must perform one night break on either NFAM-02 or NFAM-03X.

(3) A minimum of ten landings are required prior to NFAM-04.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-55	T-45/ SOLO	NFAM-04	NIGHT FAMILIARIZATION FOUR	1.3

Brief:

a. QOD
b. Solo brief
c. Waypoint navigation (T-45C only)

Practice:

a. Navigation chart for route of flight
b. Single-engine jet log
c. Visual navigation
d. Dead reckoning navigation
e. Recovery
f. Touch-and-go landings, full flaps/slats (not graded)

NOTE: A minimum of five landings are required for completion.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-60	IFT/OFT	IR-01S	INSTRUMENT RATING ONE SIMULATOR	1.5

Brief:

QOD

Practice:

a. Weather criteria
b. Complete DD 175 with single-engine jet log
c. Start malfunctions/emergencies
d. ATC clearance
e. ITO/departure/SID/climb schedule
f. Lost communications
g. Navigation instrument failure
h. Point-to-point
i. TACAN/VOR DME holding
j. TACAN/VOR DME approach partial panel
k. Missed approach
l. Enroute descent
m. PAR approach
n. ILS approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-61	OFT	IR-02S	INSTRUMENT RATING TWO SIMULATOR	1.5

Brief:

QOD

Practice:

a. Complete DD 175 with single-engine jet log
b. Takeoff emergencies
c. ATC clearance
d. ITO/departure/SID/climb schedule
e. Lost communications
f. Route/destination change
g. VOR approach
h. Missed approach
i. Enroute descent
j. Approach/landing emergencies
k. ASR approach partial panel
l. Instrument to visual scan

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-62	OFT	IR-03S	INSTRUMENT RATING THREE SIMULATOR	1.5

Brief:

QOD

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. ITO/departure/SID/climb schedule
d. Lost communications
e. In-flight emergencies
f. VOR holding
g. VOR penetration/approach
h. Enroute descent
i. ILS approach partial panel
j. Minimum fuel/emergency fuel instrument approach

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-63	OFT	IR-04S	INSTRUMENT RATING FOUR SIMULATOR	1.5

Brief:

QOD

Practice:

a. Complete DD 175 with single-engine jet log
b. Start malfunctions/emergencies
c. ATC clearance
d. ITO/departure/SID/climb schedule
e. Lost communications
f. Electrical emergencies
g. TACAN/VOR DME holding
h. TACAN/VOR DME penetration/approach
i. Route/destination change
j. TACAN/VOR DME approach partial panel
k. ASR approach partial panel
l. Circling approach to land
m. Instrument to visual scan

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-64	T-45/RC HOOD	IR-05	INSTRUMENT RATING FIVE	1.7

Brief:

a. QOD
b. Lost communications
c. In-flight emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. ITO/departure/SID/climb schedule
d. Route/destination change (if done)
e. TACAN/VOR DME holding
f. TACAN/VOR DME approach
g. Enroute descent
h. ASR approach
i. ILS approach partial panel

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-65	T-45/RC HOOD	IR-06	INSTRUMENT RATING SIX	1.7

Brief:

a. QOD
b. Lost communications
c. In-flight emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. ITO/departure/SID/climb schedule
d. Route/destination change (if done)
e. TACAN/VOR DME holding
f. TACAN/VOR DME approach
g. Enroute descent
h. ASR approach
i. ILS approach partial panel

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
03-66	T-45/RC HOOD	IR-07X	INSTRUMENT RATING SEVEN CHECK	1.7

Brief:

a. QOD
b. Lost communications
c. In-flight emergencies

Review:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. ITO/departure/SID/climb schedule
d. TACAN navigation
e. Point-to-point
f. Route/destination change (if done)
g. TACAN/VOR DME approach
h. Non-precision approach
i. Missed approach
j. Enroute descent
k. Precision approach
l. Precision approach partial panel

NOTES:

(1) Jacket review required.

(2) Must have completed instrument examinations prior to this check flight.

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MODULE 04

FIELD CARRIER LANDING PRACTICE - MIDSTAGE CQ

OBJECTIVE: Introduce the student to Field Carrier Landing Practice (FCLP) requirements with emphasis on day and night FCLPs. Performance events include day and night FCLP flights, and FCLP and EP simulators. FCLP flights stress communications, pattern control, ball control, and responsiveness to LSO calls.

Includes: CQ Flight Procedures (CQFP-01 through CQFP-03X), FCLP simulator with shipboard demonstration (FCLP-01S), Emergency Procedures simulator (EP-09S), and FCLP flights (FCLP-02 through FCLP-09X).

NOTE 1: "Headwork", "Procedures", and "Basic Airwork" are the only graded items on FCLP-03X.

NOTE 2: At least one night FCLP flight is required, under LSO control; night FCLP shall not be flown before FCLP-05.

NOTE 3: Jacket review required prior to check flights.

NOTE 4: IFLOLS should be used to the maximum extent possible.

NOTE 5: A minimum of six FCLP-type landings are required on each flight.

NOTE 6: FCLP-01S shall be flown prior to FCLP-03X.

NOTE 7: EP-09S will be flown after FCLP-03X and prior to FCLP-09X.

NOTE 8: A minimum of 180 FCLP-type landings in the T-45 are required prior to FCLP-03X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-01	MIL	CQFP-01	FIELD CARRIER LANDING PRACTICE (FCLP) PROCEDURES	1.0
04-02	MIL	CQFP-02	NIGHT FCLP PROCEDURES	0.5
04-03	CAI	CQFP-03X	CARRIER QUALIFICATION STAGE EXAMINATION	1.0
04-04	OFT	FCLP-01S	FIELD CARRIER LANDING PRACTICE ONE SIMULATOR	1.3
04-05	T-45/FC	FCLP-02	FIELD CARRIER LANDING PRACTICE TWO	0.7
04-06	T-45/FC	FCLP-03X	FIELD CARRIER LANDING PRACTICE THREE CHECK	0.7
04-07	T-45/ SOLO	FCLP-04	FIELD CARRIER LANDING PRACTICE FOUR	0.6
04-08	T-45/ SOLO	FCLP-05	FIELD CARRIER LANDING PRACTICE FIVE	0.6
04-09	T-45/ SOLO	FCLP-06	FIELD CARRIER LANDING PRACTICE SIX	0.6
04-10	T-45/ SOLO	FCLP-07	FIELD CARRIER LANDING PRACTICE SEVEN	0.6
04-11	T-45/ SOLO	FCLP-08	FIELD CARRIER LANDING PRACTICE EIGHT	0.6
04-12	OFT	EP-09S	EMERGENCY PROCEDURES NINE SIMULATOR (FCLP)	1.5
04-13	T-45/ SOLO	FCLP-09X	FIELD CARRIER LANDING PRACTICE NINE CHECK	0.6

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-04	OFT	FCLP-01S	FIELD CARRIER LANDING PRACTICE ONE SIMULATOR	1.3

Brief:

a. QOD
b. Scan technique
c. Delta pattern
d. Dirty BINGO
e. Use of Fresnel/IFLOLS lights by LSO in NORDO, bingo, and waveoff situations

Demonstrate:

a. Ship demonstration
b. Use of Fresnel/IFLOLS lights by LSO

Introduce:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Power control
g. Lineup control
h. Error detection/correction
i. Bolter/touch-and-go technique
j. Response to waveoff and technique
k. BINGO profile
l. Blown tire during field landing
m. Pattern stall/recovery
n. Field-arrested landing with blown tire

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-05	T-45/FC	FCLP-02	FIELD CARRIER LANDING PRACTICE TWO	0.7

Brief:

a. QOD
b. Pattern stall/recovery

Practice:

a. Recovery
b. Touch-and-go, full flaps/slats
c. Touch-and-go, no flaps/slats
d. Roll-and-go, full flaps/slats
e. Full-stop landing

NOTES:

(1) Shall be flown at night. LSO not required on station.

(2) FCLP-02 shall be flown within two weeks prior to FCLP-03X.

(3) NFAMFP-03X shall be complete prior to FCLP-02.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-06	T-45/FC	FCLP-03X	FIELD CARRIER LANDING PRACTICE THREE CHECK	0.7

Brief:

a. QOD
b. Communications
c. Preflight/ground OPS
d. Pattern entry

Demonstrate:

a. Lineup
b. Waveoff

Review:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

NOTE: "Headwork," "Procedures," and "Basic Airwork" are the only graded items on this flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-07	T-45/ SOLO	FCLP-04	FIELD CARRIER LANDING PRACTICE FOUR	0.6

Brief:

a. QOD
b. Pattern procedures
c. Arrestment procedures

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-08	T-45/ SOLO	FCLP-05	FIELD CARRIER LANDING PRACTICE FIVE	0.6

Brief:

a. QOD
b. Scan technique

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-09	T-45/ SOLO	FCLP-06	FIELD CARRIER LANDING PRACTICE SIX	0.6

Brief:

a. QOD
b. Glideslope corrections
c. Trend analysis

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-10	T-45/ SOLO	FCLP-07	FIELD CARRIER LANDING PRACTICE SEVEN	0.6

Brief:

a. QOD
b. Lineup corrections

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-11	T-45/ SOLO	FCLP-08	FIELD CARRIER LANDING PRACTICE EIGHT	0.6

Brief:

a. QOD
b. Trend analysis

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-12	OFT	EP-09S	EMERGENCY PROCEDURES NINE SIMULATOR (FCLP)	1.5

Brief:

a. QOD
b. Ditching situations

Introduce:

NORDO pattern

Practice:

a. In-flight emergencies
b. Pattern
c. Start position
d. Bolter/touch-and-go technique
e. Response to waveoff and technique
f. NWS failure on deck
g. Brake failure on deck
h. GINA failures/NGS/SAHRS
i. BINGO profile
j. Short field arrestment
k. Swerve after touchdown
l. Blown tire on landing
m. Field-arrested landing with blown tire
n. Ejection

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
04-13	T-45/ SOLO	FCLP-09X	FIELD CARRIER LANDING PRACTICE NINE CHECK	0.6

Brief:

a. QOD
b. Case I/II
c. BINGO profile

Review:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

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MODULE 05

OPERATIONAL NAVIGATION, WEAPONS, AND AIRWAYS NAVIGATION

OBJECTIVES:

1. Airways Navigation. This is a continuation of the training initiated in other modules.

Airways Navigation stage consists of three late stage Airways Navigation events (AN-12SX, AN-13X, and AN-14).

2. Operational Navigation Stage. Introduce the student to the principles of VFR navigation with emphasis on low-level navigation, ground feature recognition, low-altitude flying safety and precise cruise control techniques. Simulated pop-up attacks on single-plane ONAV flights shall only be performed by qualified fleet IPs within the confines of the designated low-level route structure or in designated restricted areas. During multiplane flights, additional emphasis shall be placed on introducing the student to realistic simulated enroute attacks. **Because simulated enroute attacks are prohibited when carrying ordnance, multiplane flights shall not be combined with any Weapons flights**.

Includes: ONAV Ground School (ONAV-01 through ONAV-06X), Operational Navigation Flight Procedures (ONFP-01 through ONFP-05X), Operational Navigation simulators and flights (ON-01S through ON-08X).

NOTE 1: Students shall not be scheduled for other events while in ONAV Ground School.

NOTE 2: Students must fly five different routes during ON-04 through ON-08X.

NOTE 3: SNA is required to complete five original ONAV charts, simulator and aircraft combined, during single-plane ONAVs. The SNA is authorized to copy the original chart for the IP on those flights. These five ONAV charts can be a combination of either hand-made or computer-generated originals.

NOTE 4: Students must have a minimum of 24 hours notice prior to each previously unplanned ONAV event for preflight planning.

NOTE 5: All ONAV routes should be flown at 360 knots.

NOTE 6: All ONAV routes may be flown as legs of a cross-country.

NOTE 7: **T-45C only**. ON-04 and 05 are DR navigation flights. ON-06, 07, and 08 are system navigation flights. This does not eliminate the requirement for chart preparation.

NOTE 8: Jacket review required prior to check flights.

3. Weapons Stage. Introduce the student to air-ground delivery with emphasis on dive angle control, airspeed control, pipper control, scan, corrections, accuracy, and pattern. Additionally, WEP-06SX and WEP-07 flights will introduce the dynamic flight regime found in fleet-type rendezvous.

Includes: Weapons Flight Procedures (WEPFP-01 through WEPFP-06X), Emergency Procedures simulator (EP-10S), and Weapons simulators and flights (WEP-01S through WEP-16X).

NOTE 1: WEP-07 should be scheduled as a four-plane with four bombs per aircraft.

NOTE 2: Flight leads must manage WEP-07 so students are able to acquire a minimum of five landings.

NOTE 3: T-45A will fly WEP-08 pipper-to-bull.

NOTE 4: Two off-target rendezvous are required prior to completion of WEP-10X.

NOTE 5: Either WEP-09 or WEP-10X shall be flown as a four-plane.

NOTE 6: One hung ordnance approach is required prior to WEP-10X.

NOTE 7: Students must fly at least seven off-target rendezvous during weapons syllabus.

NOTE 8: Circular Error Probability (CEP) on WEP flights shall be graded as follows:

Average CEP for WEP-09 through 11 is 125-225 feet. (T-45A only)
Average CEP for WEP-12 through 15 is 100-200 feet. (T-45A only).
Average CEP for WEP-09 through 15 is 100-200 feet. (T-45C only).

A CEP of less than 200 feet must be achieved on one of the following flights: WEP-11, 12 or 13. Failure to do so will result in a flight down (unsatisfactory).

Grading criteria may be modified by Squadron CO/Det OIC for adverse weather conditions.

NOTE 9: A Weapon "E" may be awarded for the following CEP criteria:

Bombs: A CEP of 75 feet or less with at least four bombs dropped.

NOTE 10: A minimum of four bombs delivered is required to complete each flight.

NOTE 11: Delivery of ordnance is required to complete a weapons flight. The primary pattern intended to be introduced is indicated, for example, by "30-degree bomb," while the secondary patterns to be introduced but not required for delivery are indicated, for example by "30-degree pattern."

NOTE 12: Students must fly 30-degree, 20-degree, and 10-degree patterns prior to completion of WEP-10X. All bombs should be dropped from the highest available pattern.

NOTE 13: 20-degree and 10-degree bombs are available as a weather backup on WEP-09 through WEP-13.

NOTE 14: 30-degree bombs must be dropped on at least four flights. The highest pattern required shall be flown in order to meet individual curriculum requirements within the flight.

NOTE 15: CCIP target tracking may be practiced on WEP-15 and flown only in the delivery mode and pattern as introduced on WEP-14X (T-45C only).

NOTE 16: Jacket review required prior to check flights.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-01	OFT	AN-12SX	AIRWAYS NAVIGATION TWELVE SIMULATOR CHECK	1.5
05-02	T-45/FC	AN-13X	AIRWAYS NAVIGATION THIRTEEN CHECK	1.3
05-03	LAB	ONAV-01	MANUAL ROUTE CONSTRUCTION	6.0
05-04	LAB	ONAV-02	MANUAL ROUTE CONSTRUCTION	6.0
05-05	LAB	ONAV-03	COMPUTER ROUTE CONSTRUCTION	5.5
05-06	LAB	ONAV-04	COMPUTER ROUTE CONSTRUCTION	5.5
05-07	LECT	ONAV-05	ONAV REVIEW	1.0
05-08	PENCIL	ONAV-06X	ONAV EXAMINATION	4.0
05-09	CAI	ONFP-01	LOW-LEVEL WAYPOINT NAVIGATION (T-45C ONLY)	0.7
05-10	CAI	ONFP-02	HUD I (T-45A ONLY)	0.7
05-11	CAI	ONFP-03	HUD II (T-45A ONLY)	0.7
05-12	MIL	ONFP-04	ONAV PROCEDURES	2.0
05-13	CAI	ONFP-05X	OPERATIONAL NAVIGATION STAGE EXAMINATION	1.0
05-14	OFT	ON-01S	OPERATIONAL NAVIGATION ONE SIMULATOR	1.5
05-15	OFT	ON-02S	OPERATIONAL NAVIGATION TWO SIMULATOR	1.3
05-16	OFT	ON-03S	OPERATIONAL NAVIGATION THREE SIMULATOR	1.3
05-17	T-45/FC	ON-04	OPERATIONAL NAVIGATION FOUR	1.3
05-18	T-45/FC	ON-05	OPERATIONAL NAVIGATION FIVE	1.3
05-19	T-45/FC	ON-06	OPERATIONAL NAVIGATION SIX	1.3
05-20	T-45/FC	ON-07	OPERATIONAL NAVIGATION SEVEN	1.3

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-21	T-45/FC	ON-08X	OPERATIONAL NAVIGATION EIGHT CHECK	1.3
05-22	CAI	WEPFP-01	WEAPONS DATA ENTRY PROCEDURES (T-45C ONLY)	0.7
05-23	CAI	WEPFP-02	HUD (T-45A ONLY)	0.7
05-24	MIL	WEPFP-03	WEAPONS DELIVERY	0.8
05-25	MIL	WEPFP-04	WEAPONS DELIVERY	0.7
05-26	MIL	WEPFP-05	WEAPONS DELIVERY	1.5
05-27	CAI	WEPFP-06X	WEAPONS STAGE EXAMINATION	1.0
05-28	OFT	WEP-01S	WEAPONS ONE SIMULATOR	1.3
05-29	OFT	WEP-02S	WEAPONS TWO SIMULATOR	1.0
05-30	OFT	WEP-03S	WEAPONS THREE SIMULATOR	1.0
05-31	OFT	WEP-04S	WEAPONS FOUR SIMULATOR	1.0
05-32	OFT	EP-10S	EMERGENCY PROCEDURES TEN SIMULATOR	1.3
05-33	OFT	WEP-05S	WEAPONS FIVE SIMULATOR	1.0
05-34	OFT	WEP-06SX	WEAPONS SIX SIMULATOR CHECK	1.3
05-35	T-45/FC	WEP-07	WEAPONS SEVEN 4 PRACTICE BOMBS	1.2
05-36	T-45/FC	WEP-08	WEAPONS EIGHT 8 PRACTICE BOMBS	1.1
05-37	T-45/FC	WEP-09	WEAPONS NINE 8 PRACTICE BOMBS	1.1
05-38	T-45/FC	WEP-10X	WEAPONS TEN CHECK 8 PRACTICE BOMBS	1.1
05-39	T-45/ SOLO	WEP-11	WEAPONS ELEVEN 8 PRACTICE BOMBS	1.1
05-40	T-45/ SOLO	WEP-12	WEAPONS TWELVE 8 PRACTICE BOMBS	1.1

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-41	T-45/ SOLO	WEP-13	WEAPONS THIRTEEN 8 PRACTICE BOMBS	1.1
05-42	T-45/FC	WEP-14X	WEAPONS FOURTEEN CHECK 8 PRACTICE BOMBS	1.1
05-43	T-45/ SOLO	WEP-15	WEAPONS FIFTEEN 8 PRACTICE BOMBS	1.1
05-44	T-45/FC	WEP-16X	WEAPONS SIXTEEN CHECK 8 PRACTICE BOMBS	1.2
05-45	T-45/ SOLO	AN-14	AIRWAYS NAVIGATION FOURTEEN	1.4

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-01	OFT	AN-12SX	AIRWAYS NAVIGATION TWELVE SIMULATOR CHECK	1.5

Brief:

QOD

Review:

a. Complete DD 175 with single-engine jet log
b. Instrument communications
c. ATC clearance
d. ITO/departure/SID/climb schedule
e. Lost communications
f. In-flight emergencies
g. Route/destination change
h. Point-to-point
i. TACAN/VOR DME holding
j. TACAN/VOR DME approach
k. Enroute descent
l. PAR approach
m. ILS approach
n. Partial panel approach(es)
o. Circling approach to land

NOTE: Should be flown at night.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-02	T-45/FC	AN-13X	AIRWAYS NAVIGATION THIRTEEN CHECK	1.3

Brief:

a. QOD
b. Night landing at field without Fresnel lens
c. Transition from ½ flaps to full flaps for T&G/full-stop
d. Circle to land procedures
e. Uncontrolled airport
f. Unicom voice procedures

Introduce:

Transition to full flaps off an instrument approach

Review:

a. Night landing at field without Fresnel lens
b. DD 175/stereo flight plan
c. Instrument communications
d. ATC clearance
e. Precision approach, unfamiliar field
f. Non-precision approach, unfamiliar field
g. Night break (Wx permitting)
h. Touch-and-go, full flaps/slats
i. Full-stop, full flaps/slats

NOTE: Should be flown at night.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-14	OFT	ON-01S	OPERATIONAL NAVIGATION ONE SIMULATOR	1.5

Brief:

a. QOD
b. Low altitude hazards/safety
c. BINGO profile
d. Max range profile

Demonstrate:

Declutter mode

Introduce:

a. Check/test HUD
b. Enter HUD data
c. HUD failure
d. IMC transit to route
e. Route entry
f. Low-level basic airwork
g. Interpret charts
h. Recognize checkpoints
i. Fuel/time calculations
j. Course/time corrections
k. Communications

Practice:

a. ONAV planning
b. Chart preparation
c. VFR recovery
d. Landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-15	OFT	ON-02S	OPERATIONAL NAVIGATION TWO SIMULATOR	1.3

Brief:

a. QOD
b. MFD failure (T-45C only)
c. Low altitude hazards/safety
d. Inadvertent IMC (low altitude)
e. Sun angle/shadowing

Introduce:

a. Weather response
b. BINGO

Practice:

a. Chart preparation
b. ONAV planning
c. Enter HUD data
d. HUD failure
e. Route entry
f. Knowledge of route
g. Interpret charts
h. Recognize checkpoints
i. Fuel/time calculations
j. Course/time corrections
k. Communications
l. VFR recovery
m. Landing(s)
n. Swerve on touchdown

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-16	OFT	ON-03S	OPERATIONAL NAVIGATION THREE SIMULATOR	1.3

Brief:

a. QOD
b. Low altitude emergencies
c. Ridgeline crossing techniques

Introduce:

Low-level waypoint navigation (T-45C)

Practice:

a. Chart preparation
b. ONAV planning
c. Route entry
d. Interpret charts
e. Recognize checkpoints
f. Knowledge of route
g. Fuel/time calculations
h. Course/time corrections
i. Communications
j. Recovery to pattern
k. Landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-17	T-45/FC	ON-04	OPERATIONAL NAVIGATION FOUR	1.3

Brief:

a. QOD
b. Emergency BINGO
c. Maximum range profile
d. Inadvertent low altitude IMC
e. Low altitude emergencies
f. Mission task management

Practice:

a. Chart preparation
b. ONAV planning
c. Route entry
d. Interpret charts
e. Recognize checkpoints
f. Knowledge of route
g. Fuel/time calculations
h. Course/time corrections
i. Communications
j. BINGO
k. Recovery to pattern
l. Landing(s)

NOTE: T-45C only - DR navigation flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-18	T-45/FC	ON-05	OPERATIONAL NAVIGATION FIVE	1.3

Brief:

a. QOD
b. Low altitude flight safety
c. Sun angles
d. Shadows

Demonstrate:

Target attack (if flown, per SOP)

Practice:

a. Chart preparation
b. ONAV planning
c. Route entry
d. Interpret charts
e. Recognize checkpoints
f. Knowledge of route
g. Fuel/time calculations
h. Course/time corrections
i. Communications
j. Recovery to pattern
k. Landing(s)

NOTE: T-45C only - DR navigation flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-19	T-45/FC	ON-06	OPERATIONAL NAVIGATION SIX	1.3

Brief:

a. QOD
b. Low altitude flight safety
c. Ridgeline crossing
d. Waypoint data entry (T-45C)
e. Use of sequential steering (T-45C)

Demonstrate:

Target attack (if flown, per SOP)

Introduce:

Low-level waypoint navigation (T-45C only)

Practice:

a. Chart preparation
b. ONAV planning
c. Route entry
d. Interpret charts
e. Recognize checkpoints
f. Knowledge of route
g. Fuel/time calculations
h. Course/time corrections
i. Communications
j. Recovery to pattern
k. Landing(s)

NOTE: T-45C only - system navigation flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-20	T-45/FC	ON-07	OPERATIONAL NAVIGATION SEVEN	1.3

Brief:

a. QOD
b. Low altitude flight safety
c. Mission task management
d. Auto sequential steering (T-45C)

Demonstrate:

Target attack (if flown, per SOP)

Practice:

a. Chart preparation
b. ONAV planning
c. Route entry
d. Interpret charts
e. Low-level waypoint navigation (T-45C only)
f. Recognize checkpoints
g. Knowledge of route
h. Fuel/time calculations
i. Course/time corrections
j. Communications
k. Recovery to pattern
l. Landing(s)

NOTE: T-45C only – system navigation flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-21	T-45/FC	ON-08X	OPERATIONAL NAVIGATION EIGHT CHECK	1.3

Brief:

a. QOD
b. Low altitude flight safety
c. Tactical implications of timing
d. Go/no go criteria

Review:

a. Chart preparation
b. ONAV planning
c. Route entry
d. Interpret charts
e. Low-level waypoint navigation (T-45C)
f. Recognize checkpoints
g. Knowledge of route
h. Fuel/time calculations
i. Course/time corrections
j. Communications
k. BINGO
l. Minimum fuel/Emergency fuel instrument approach
m. Roll-and-go, full flaps/slats
n. Landing(s)

NOTES:

(1) Jacket review required.

(2) T-45C only – system navigation flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-28	OFT	WEP-01S	WEAPONS ONE SIMULATOR	1.3

Brief:

QOD

Introduce:

a. Set HUD
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. Abeam
f. Roll-in
g. Tracking/dive angle, curvilinear technique
h. Error corrections
i. Release parameters
j. Dive recovery
k. Abort run
l. Communications
m. Rendezvous
n. HUD failure

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-29	OFT	WEP-02S	WEAPONS TWO SIMULATOR	1.0

Brief:

QOD

Introduce:

a. 20-degree bombs
b. Tracking/dive angle (straight path technique)

Practice:

a. Set HUD
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. Abeam
f. Roll-in
g. Error corrections
h. Release parameters
i. Dive recovery
j. Abort run
k. Communications
l. Rendezvous

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-30	OFT	WEP-03S	WEAPONS THREE SIMULATOR	1.0

Brief:

QOD

Introduce:

10-degree bombs

Practice:

a. Set HUD
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. Abeam
f. Roll-in
g. Tracking/dive angle
h. Error corrections
i. Release parameters
j. Dive recovery
k. Abort run
l. Communications
m. Rendezvous

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-31	OFT	WEP-04S	WEAPONS FOUR SIMULATOR	1.0

Brief:

a. QOD
b. Compute offset aimpoint

Introduce:

a. 30-degree rockets
b. CCIP target tracking (T-45C)
c. Strafe
d. Firing altitude
e. Strafe recovery

Practice:

a. Set HUD
b. Target procedures
c. Armament system management
d. Abeam
e. Roll-in
f. Tracking/dive angle
g. Error corrections
h. Firing parameters
i. Dive recovery
j. Abort run
k. Communications
l. Rendezvous

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-32	OFT	EP-10S	EMERGENCY PROCEDURES TEN SIMULATOR	1.3

Brief:

a. QOD
b. Lost interval

Introduce:

a. Hung ordnance approach
b. Pitot static malfunctions
c. Simo run
d. Emergency jettison

Practice:

a. In-flight emergencies
b. HUD failure (air-to-ground)
c. Lost communications in weapons pattern
d. Ejection
e. Blown tire during takeoff/landing
f. Go-around
g. Pattern stall/recovery

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-33	OFT	WEP-05S	WEAPONS FIVE SIMULATOR	1.0

Brief:

QOD

Introduce:

a. 30-30 pop
b. Pattern procedures
c. Pattern communications

Practice:

a. HUD switchology
b. Armament system management
c. 10-degree bombs
d. Tracking/dive angle
e. Error corrections
f. Firing parameters
g. Dive recovery
h. Abort run
i. Rendezvous

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-34	OFT	WEP-06SX	WEAPONS SIX SIMULATOR CHECK	1.3

Brief:

a. QOD
b. Compute CEP
c. Weapons emergencies
d. Emergency jettison

Review:

a. Compute offset aimpoint
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. 10-degree bombs
f. 30-30 pop
g. Abeam
h. Roll-in
i. Tracking/dive angle
j. Error corrections
k. Release/firing parameters
l. Dive recovery
m. Abort run
n. Communications
o. Rendezvous

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-35	T-45/FC	WEP-07	WEAPONS SEVEN 4 PRACTICE BOMBS	1.2

Brief:

a. QOD
b. High angle-off-tail rendezvous
c. Noncritical mission tasks

Introduce:

a. High angle-off-tail rendezvous (minimum of 2)
b. Altitude sanctuary
c. 30-degree bombs
d. 20-degree pattern

Practice:

a. Division ground OPS
b. Formation communications
c. Interval takeoff
d. Division rendezvous
e. Division cruise
f. Shuffle division (if desired)
g. Division hung ordnance straight-in
h. Landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-36	T-45/FC	WEP-08	WEAPONS EIGHT 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. Formation safety
c. Mil settings
d. Master arm safety
e. Inadvertent weapons release

Introduce:

a. Weapons preflight
b. Mach run
c. Hung ordnance checks

Practice:

a. Target procedures
b. Armament system management
c. 30-degree bombs
d. 20-degree pattern
e. Abeam
f. Roll-in
g. Tracking/dive angle
h. Error corrections
i. Release/firing parameters
j. Dive recovery
k. Pattern interval
l. Communications
m. Rendezvous
n. Hung ordnance approach
o. Landing(s)

NOTE: Notes 3,4,6,7,10,11,12, and 14 apply.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-37	T-45/FC	WEP-09	WEAPONS NINE 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. Wind corrections, offset aimpoint

Practice:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. 10-degree pattern
f. Roll-in
g. Tracking/dive angle
h. Error corrections
i. Release/firing parameters
j. Dive recovery
k. Pattern interval
l. Communications
m. Rendezvous
n. Hung ordnance checks
o. Hung ordnance approach (if flown)
p. Landing(s) (not graded)
q. Accuracy

NOTE: Notes 4,5,6,7,8,9,10,11,12,13 and 14 apply.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-38	T-45/FC	WEP-10X	WEAPONS TEN CHECK 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. Wind corrections, offset, aimpoint
c. Switchology error
d. Ordnance release troubleshooting

Review:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. 10-degree pattern
f. Roll-in
g. Tracking/dive angle
h. Error corrections
i. Release/firing parameters
j. Dive recovery
k. Pattern interval
l. Communications
m. Rendezvous
n. Hung ordnance checks
o. Hung ordnance approach (if flown)
p. Roll-and-go, full flaps/slats
q. Landing(s)
r. Accuracy

NOTES:

(1) Notes 4,5,7,8,9,10,11,12,13, and 14 apply.

(2) Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-39	T-45/ SOLO	WEP-11	WEAPONS ELEVEN 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. FTI safety precautions

Practice:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. 10-degree pattern
f. Roll-in
g. Tracking/dive angle
h. Error corrections
i. Release/firing parameters
j. Dive recovery
k. Pattern interval
l. Communications
m. Rendezvous
n. Hung ordnance checks
o. Hung ordnance approach (if flown)
p. Landing(s) (not graded)
q. Accuracy

NOTE: Notes 7,8,9,10,11,13, and 14 apply.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-40	T-45/ SOLO	WEP-12	WEAPONS TWELVE 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. FTI safety precautions

Practice:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. 10-degree pattern
f. Roll-in
g. Tracking/dive angle
h. Error corrections
i. Release/firing parameters
j. Dive recovery
k. Pattern interval
l. Communications
m. Rendezvous
n. Hung ordnance checks
o. Hung ordnance approach (if flown)
p. Landing(s) (not graded)
q. Accuracy

NOTE: Notes 7,8,9,10,11,13, and 14 apply.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-41	T-45/ SOLO	WEP-13	WEAPONS THIRTEEN 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. FTI safety precautions

Practice:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 30-degree bombs
e. 10-degree pattern
f. Roll-in
g. Tracking/dive angle
h. Error corrections
i. Release/firing parameters
j. Dive recovery
k. Pattern interval
l. Communications
m. Rendezvous
n. Hung ordnance checks
o. Hung ordnance approach (if flown)
p. Landing(s) (not graded)
q. Accuracy

NOTE: Notes 7,8,9,10,11,13, and 14 apply.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-42	T-45/FC	WEP-14X	WEAPONS FOURTEEN CHECK 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. Safety requirements for forward firing ordnance
c. Ricochet dangers (jinking)
d. Emergencies

Introduce:

CCIP bomb 10-degree/30-degree (T-45C)

Review:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 10-degree bombs
e. Strafe
f. 30-degree rockets (if done)
g. Roll-in
h. Tracking/dive angle
i. Error corrections
j. Release/firing parameters
k. Dive recovery
l. Pattern interval
m. Communications
n. Rendezvous
o. Hung ordnance checks
p. Hung ordnance approach (if flown)
q. Roll-and-go, full flaps/slats
r. Landing(s)
s. Accuracy

NOTES:

(1) Jacket review required.

(2) Notes 7,8,9,10,11,14, and 15 apply.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-43	T-45/ SOLO	WEP-15	WEAPONS FIFTEEN 8 PRACTICE BOMBS	1.1

Brief:

a. QOD
b. FTI safety precautions

Practice:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 10-degree bombs
e. Strafe
f. 30-degree rockets (if done)
g. CCIP bomb 10-degree/30-degree (if done T-45C only)
h. Roll-in
i. Tracking/dive angle
j. Error corrections
k. Release/firing parameters
l. Dive recovery
m. Pattern interval
n. Communications
o. Rendezvous
p. Hung ordnance checks
q. Hung ordnance approach (if flown)
r. Landing(s) (not graded)
s. Accuracy

NOTE: Notes 7,8,9,10,11,14, and 15 apply.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-44	T-45/FC	WEP-16X	WEAPONS SIXTEEN CHECK 8 PRACTICE BOMBS	1.2

Brief:

a. QOD
b. Racetrack pattern
c. 30-30 pop
d. Abort criteria

Introduce:

a. 30-30 pop
b. Pattern procedures
c. Pattern communications

Review:

a. Weapons preflight
b. Target procedures
c. Armament system management
d. 10-degree bombs
e. Tracking/dive angle
f. Error corrections
g. Release/firing parameters
h. Dive recovery
i. Rendezvous
j. Hung ordnance checks
k. Hung ordnance approach (if flown)
l. Landing(s)
m. Accuracy

NOTES:

(1) Notes 7,9,10, and 11 apply.

(2) May be flown anytime after WEP-10X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
05-45	T-45/ SOLO	AN-14	AIRWAYS NAVIGATION FOURTEEN	1.4

Brief:

a. QOD
b. In-flight emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. ITO/departure/SID/climb schedule
d. Holding (if done)
e. Enroute descent
f. Precision approach(es)
g. Non-precision approach(es)

NOTE: Only “Headwork” will be graded by a qualified instructor.

MODULE 06

AIRWAYS NAVIGATION, TACTICAL FORMATION, NIGHT FORMATION, OPERATIONAL NAVIGATION

OBJECTIVES:

1. Airways Navigation/Operational Navigation. This is a continuation of the training initiated in other modules.

Operational Navigation Stage in this module includes Operational Navigation Flight Procedures (ONFP-06 and ONFP-07X) and Operational Navigation flights (ON-09 through ON-14). Airways Navigation stage in this module includes Airways Navigation simulator and flights (AN-15S through AN-20).

NOTE 1: WEP-16 must be complete and weather at or better than 5000/5 to perform pop-up attacks on ON-13 and ON-14. Otherwise, level lay down tactics will be utilized.

NOTE 2: To the maximum extent possible, students shall lead one portion of either ON-13 or ON-14.

NOTE 3: Any suitable VR or IR route can be flown on ON-13 and ON-14.

NOTE 4: ON-13 and ON-14 need not be flown with the same partner.

NOTE 5: Jacket review required prior to check flights.

NOTE 6: AN-19 and AN-20 shall be scheduled consecutively.

2. Tactical Formation. Introduce the student to tactical formation flying with emphasis on formation integrity, lookout doctrine, positioning, judgment of closure and angle off, and formation operations. Air combat maneuvering will not be performed.

Includes: Tactical Formation Flight Procedures (TFFP-01 through TFFP-04X) and Tactical Formation flights (TACF-01 through TACF-07).

NOTE 1: TACF-07 must be flown prior to ON-09.

NOTE 2: Jacket review required prior to check flights.

3. Night Formation. Develop the student's night flying ability with emphasis on the instrument aspects of night flying, night formation, and night landing techniques.

Includes: Night Formation Flight Procedures (NFFP-01 and NFFP-02X), Night Formation simulator and flights (NFORM-01S through NFORM-04), and Emergency Procedures simulator (EP-11S).

NOTE 1: A day or night front seat landing within the previous three days is a prerequisite for night solo flight.

NOTE 2: All night flights shall take off no earlier than 30 minutes after official sunset.

NOTE 3: Night solo flights require an operating radar altimeter.

NOTE 4: Fly a touch-and-go or low approach/rejoin on NFORM-03 (if not flown on NFORM-02).

NOTE 5: Jacket review required prior to check flights.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-01	OFT	AN-15S	AIRWAYS NAVIGATION FIFTEEN SIMULATOR	1.5
06-02	T-45/RC HOOD	AN-16	AIRWAYS NAVIGATION SIXTEEN	1.5
06-03	T-45/FC	AN-17	AIRWAYS NAVIGATION SEVENTEEN	1.5
06-04	T-45/FC	AN-18X	AIRWAYS NAVIGATION EIGHTEEN CHECK	1.6
06-05	CAI	TFFP-01	HUD/DATA ENTRY PROCEDURES	0.7
06-06	MIL	TFFP-02	INTRODUCTION TO TACTICAL FORMATION PROCEDURES	1.5
06-07	MIL	TFFP-03	TACTICAL FORMATION	1.5
06-08	CAI	TFFP-04X	TACTICAL FORMATION STAGE EXAMINATION	1.0
06-09	T-45/FC	TACF-01	TACTICAL FORMATION ONE	1.3
06-10	T-45/FC	TACF-02	TACTICAL FORMATION TWO	1.3

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-11	MIL	NFFP-01	NIGHT FORMATION FLIGHT PROCEDURES	1.2
06-12	CAI	NFFP-02X	NIGHT FORMATION STAGE EXAMINATION	1.0
06-13	T-45/FC	TACF-03	TACTICAL FORMATION THREE	1.2
06-14	T-45/FC	TACF-04	TACTICAL FORMATION FOUR	1.2
06-15	T-45/FC	TACF-05	TACTICAL FORMATION FIVE	1.2
06-16	T-45/FC	TACF-06X	TACTICAL FORMATION SIX CHECK	1.2
06-17	T-45/ SOLO	TACF-07	TACTICAL FORMATION SEVEN	1.2
06-18	OFT	NFORM-01S	NIGHT FORMATION ONE SIMULATOR	1.5
06-19	MIL	ONFP-06	TWO-PLANE ONAV ROAD RECCE	1.0
06-20	CAI	ONFP-07X	TWO-PLANE ONAV EXAMINATION	0.4
06-21	OFT	EP-11S	EMERGENCY PROCEDURES ELEVEN SIMULATOR (NIGHT)	0.9
06-22	T-45/FC	NFORM-02	NIGHT FORMATION TWO	1.5
06-23	T-45/FC	NFORM-03X	NIGHT FORMATION THREE CHECK	1.4
06-24	T-45/ SOLO	NFORM-04	NIGHT FORMATION FOUR	1.3
06-25	T-45/FC	ON-09	OPERATIONAL NAVIGATION NINE	1.2
06-26	T-45/FC	ON-10	OPERATIONAL NAVIGATION TEN	1.2
06-27	T-45/FC	ON-11X	OPERATIONAL NAVIGATION ELEVEN CHECK	1.2
06-28	T-45/ SOLO	ON-12	OPERATIONAL NAVIGATION TWELVE	1.2

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-29	T-45/FC	ON-13	OPERATIONAL NAVIGATION THIRTEEN	1.2
06-30	T-45/FC	ON-14	OPERATIONAL NAVIGATION FOURTEEN	1.2
06-31	T-45/ SOLO	AN-19	AIRWAYS NAVIGATION NINETEEN	1.5
06-32	T-45/ SOLO	AN-20	AIRWAYS NAVIGATION TWENTY	1.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-01	OFT	AN-15S	AIRWAYS NAVIGATION FIFTEEN SIMULATOR	1.5

Brief:

a. QOD
b. Weather update techniques

Practice:

a. Start malfunctions/emergencies
b. Instrument communications
c. ATC clearance
d. ITO/departure/SID/climb schedule
e. Lost communications
f. In-flight emergencies
g. Route/destination change
h. Point-to-point
i. TACAN/VOR DME holding
j. TACAN/VOR DME approach
k. Enroute descent
l. STAR
m. PAR approach
n. ILS approach
o. Partial panel approach(es)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-02	T-45/RC HOOD	AN-16	AIRWAYS NAVIGATION SIXTEEN	1.5

Brief:

a. QOD
b. In-flight emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. Instrument communications
c. ATC clearance
d. Departure/SID/climb schedule
e. Route/destination change (if done)
f. VOR penetration/approach
g. Enroute descent
h. PAR approach
i. Partial panel approach(es) (if done)
j. Minimum fuel/emergency fuel instrument approach
k. No gyro GCA (if done)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-03	T-45/FC	AN-17	AIRWAYS NAVIGATION SEVENTEEN	1.5

Brief:

a. QOD
b. In-flight emergencies

Practice:

a. Complete DD 175 with single-engine jet log
b. Instrument communications
c. ATC clearance
d. ITO/departure/SID/climb schedule
e. Route/destination change (if done)
f. Point-to-point
g. TACAN/VOR DME holding
h. TACAN/VOR DME approach
i. Missed approach
j. Enroute descent
k. PAR approach
l. ILS approach
m. Landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-04	T-45/FC	AN-18X	AIRWAYS NAVIGATION EIGHTEEN CHECK	1.6

Brief:

a. QOD
b. In-flight emergencies
c. Lost communications

Review:

a. Complete DD 175 with single-engine jet log
b. ATC clearance
c. ITO/departure/SID/climb schedule
d. Airways navigation
e. Route/destination change (if done)
f. Holding (if done)
g. Enroute descent
h. Precision approach
i. Non-precision approach
j. Roll-and-go, full flaps/slats
k. Full-stop landing

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-09	T-45/FC	TACF-01	TACTICAL FORMATION ONE	1.3

Brief:

a. QOD
b. Lost sight
c. VCR management
d. G-warm maneuver
e. 500-ft safety bubble

Demonstrate:

a. Position errors/corrections
b. Running eyeball calibration

Introduce:

a. Combat checks
b. Voice communications
c. Defensive combat spread
d. Check turns
e. Shackle turns
f. Cruise turns
g. Tactical turns
h. In-place turns
i. Cross turns
j. Gunsight tracking exercise (fuel permitting)
k. Unknown airspeed rendezvous
l. Situational awareness

Practice:

a. Formation
b. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-10	T-45/FC	TACF-02	TACTICAL FORMATION TWO	1.3

Brief:

a. QOD
b. Knock-it-off procedures
c. Unknown airspeed rendezvous

Introduce:

a. Off-heading shackle turns
b. Loose deuce exercise
c. Displacement roll/reversal

Practice:

a. Combat checks
b. Voice communications
c. Formation
d. Defensive combat spread
e. Check turns
f. Shackle turns
g. Cruise turns
h. Tactical turns
i. In-place turns
j. Cross turns
k. Unknown airspeed rendezvous
l. Gunsight tracking exercise (fuel permitting)
m. Situational awareness
n. Lead (if flown)
o. Touch-and-go landings

NOTE: If the "Gunsight Tracking Exercise" has been performed on either TACF-01 or TACF-02, it will be performed as a "Practice" item on TACF-03. If not previously performed, it will be introduced on TACF-03.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-13	T-45/FC	TACF-03	TACTICAL FORMATION THREE	1.2

Brief:

a. QOD
b. Weapons envelope
c. Attack window entry

Introduce:

Gunsight tracking exercise (if required)

Practice:

a. Combat checks
b. Voice communications
c. Formation
d. Defensive combat spread
e. Check turns
f. Shackle turns
g. Off-heading shackle turns
h. Cruise turns
i. Tactical turns
j. In-place turns
k. Cross turns
l. Loose deuce exercise
m. Displacement roll/reversal
n. Unknown airspeed rendezvous
o. Lead (if flown)
p. Situational awareness
q. Touch-and-go landings

NOTE: If the "Gunsight Tracking Exercise" has been performed on either TACF-01 or TACF-02, it will be performed as a "Practice" item on TACF-03. If not previously performed, it will be introduced on TACF-03.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-14	T-45/FC	TACF-04	TACTICAL FORMATION FOUR	1.2

Brief:

a. QOD
b. Control zone
c. Pursuit curves

Practice:

a. Combat checks
b. Voice communications
c. Formation
d. Defensive combat spread
e. Check turns
f. Shackle turns
g. Off-heading shackle turns
h. Cruise turns
i. Tactical turns
j. In-place turns
k. Cross turns
l. Loose deuce exercise
m. Displacement roll/reversal
n. Gunsight tracking exercise
o. Unknown airspeed rendezvous
p. Situational awareness
q. Lead (if flown)
r. Precautionary approach (emergency instrument approach desired)
s. Roll-and-go, full flaps/slats
t. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-15	T-45/FC	TACF-05	TACTICAL FORMATION FIVE	1.2

Brief:

a. QOD
b. Position corrections after random maneuvers
c. Comm-out tactical formations signals
d. Wingman deconfliction responsibilities

Introduce:

a. Random tactical formation maneuvering
b. Comm-out tactical formation maneuvering
c. Forced cockpit loading
d. Offensive combat spread

Practice:

a. Combat checks
b. Voice communications
c. Formation
d. Defensive combat spread
e. Check turns
f. Shackle turns
g. Off-heading shackle turns
h. Tactical turns
i. In-place turns
j. Gunsight tracking exercise
k. Unknown airspeed rendezvous
l. Combat spread responsibilities
m. Situational awareness
n. Lead (if flown)
o. Roll-and-go, full flaps/slats (if done)
p. Precautionary approach (if flown)
q. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-16	T-45/FC	TACF-06X	TACTICAL FORMATION SIX CHECK	1.2

Brief:

a. QOD
b. Position corrections after random maneuvers
c. Comm-out tactical formation signals
d. Wingman deconfliction responsibilities

Review:

a. Random tactical formation maneuvering
b. Comm-out tactical formation maneuvering
c. Forced cockpit loading
d. Offensive combat spread
e. Combat checks
f. Voice communications
g. Formation
h. Defensive combat spread
i. Check turns
j. Shackle turns
k. Tactical turns
l. In-place turns
m. Gunsight tracking exercise
n. Unknown airspeed rendezvous
o. Combat spread responsibilities
p. Situational awareness
q. Lead (if flown)
r. Roll-and-go, full flaps/slats (if flown)
s. Precautionary/emergency approach (if flown)
t. Touch-and-go landings

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-17	T-45/ SOLO	TACF-07	TACTICAL FORMATION SEVEN	1.2

Brief:

a. QOD
b. Wingman deconfliction responsibilities
c. Pattern stall/recovery

Practice:

a. Combat checks
b. Voice communications
c. Formation
d. Defensive combat spread
e. Check turns
f. Shackle turns
g. Tactical turns
h. In-place turns
i. Random tactical formation maneuvering
j. Comm-out tactical formation maneuvering
k. Gunsight tracking exercise
l. Offensive combat spread
m. Unknown airspeed rendezvous
n. Combat spread responsibilities
o. Situational awareness
p. Lead (if flown)
q. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-18	OFT	NFORM-01S	NIGHT FORMATION ONE SIMULATOR	1.5

Brief:

a. QOD
b. NORDO light signals

Introduce:

a. Formation ground OPS
b. Marshal/hold short
c. Taxi
d. Individual takeoff
e. TACAN rendezvous
f. IFR parade
g. Crossunder
h. Breakup and rendezvous
i. Running rendezvous

Practice:

a. Formation communications
b. Formation abort
c. Electrical emergencies
d. Cockpit lighting failure
e. Section approach
f. Section missed approach
g. Section break
h. Touch-and-go landings
i. Pattern stall/recovery
j. Postlanding emergencies

NOTE: Use twilight mode of simulator.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-21	OFT	EP-11S	EMERGENCY PROCEDURES ELEVEN SIMULATOR (NIGHT)	0.9

Brief:

a. QOD
b. NORDO light signals
c. Night BINGO considerations
d. Airfield lighting
e. Cockpit fogging

Introduce:

Night NORDO

Practice:

a. Formation abort
b. Blown tire during takeoff
c. Electrical emergencies
d. Cockpit lighting failure
e. Field arrestment
f. Blown tire on landing
g. Pattern stall/recovery

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-22	T-45/FC	NFORM-02	NIGHT FORMATION TWO	1.5

Brief:

a. QOD
b. Landing pattern
c. Formation safety
d. Emergencies
e. Night lead

Introduce:

a. Formation ground OPS
b. Marshal/hold short
c. Individual takeoff
d. TACAN rendezvous (2 minimum)
e. IFR parade
f. Crossunder
g. Breakup and rendezvous (4 x 250)
h. Running rendezvous (at altitude)
i. Lead change
j. Touch-and-go/rejoin (desired) or section missed approach

Practice:

a. Formation communications
b. Section approach (may be simulated at altitude)
c. Section break
d. Touch-and-go landings

NOTE: One touch-and-go/rejoin will be flown on either NFORM-02 or NFORM-03X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-23	T-45/FC	NFORM-03X	NIGHT FORMATION THREE CHECK	1.4

Brief:

a. QOD
b. NORDO lead change
c. Total electrical failure

Review:

a. Formation ground OPS
b. Formation communications
c. Individual takeoff
d. TACAN rendezvous (2 minimum)
e. IFR parade
f. Crossunder
g. Breakup and rendezvous (3 x 250)
h. Running rendezvous (at altitude)
i. Lead change
j. Section approach (may be simulated at altitude)
k. Section missed approach
l. Section break (Wx permitting)
m. Touch-and-go landings

NOTES:

(1) Jacket review required.

(2) Touch-and-go/rejoin required (if not flown on NFORM-02).

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-24	T-45/ SOLO	NFORM-04	NIGHT FORMATION FOUR	1.3

Brief:

a. QOD
b. Night BINGO procedures

Practice:

a. Formation ground OPS
b. Formation communications
c. Individual takeoff
d. TACAN rendezvous
e. IFR parade
f. Crossunder
g. Breakup and rendezvous
h. Running rendezvous (at altitude)
i. Lead change
j. Section approach (may be simulated at altitude)
k. Section missed approach
l. Section break (Wx permitting)
m. Touch-and-go landings (not graded)

NOTE: Must be briefed and graded by a qualified instructor.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-25	T-45/FC	ON-09	OPERATIONAL NAVIGATION NINE	1.2

Brief:

a. QOD
b. Low altitude hazards
c. Low altitude emergencies
d. Low altitude section maneuvering
e. Low altitude section deconfliction
f. Low altitude flight safety
g. NORDO procedures
h. Display management (T-45C only)

Demonstrate:

Section target attack (per SOP)

Introduce:

a. Tactical lead
b. Tactical wing
c. Mutual support

Practice:

a. ONAV planning
b. Route entry
c. Interpret charts
d. Recognize checkpoints
e. Knowledge of route
f. Communications
g. Formation
h. Combat spread
i. Check turns
j. Shackle turns
k. Cruise turns
l. Tactical turns
m. In-place turns
n. Recovery to pattern
o. Landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-26	T-45/FC	ON-10	OPERATIONAL NAVIGATION TEN	1.2

Brief:

a. QOD
b. Slow speed and low altitude roll-ins
c. Two-plane armed reconnaissance
d. Attacks on approved targets of opportunity with simulated ordnance
e. Target area deconfliction
f. Display management (T-45C only)

Introduce:

a. Target description
b. Target attack

Practice:

a. ONAV planning
b. Route entry
c. Interpret charts
d. Recognize checkpoints
e. Knowledge of route
f. Tactical lead
g. Tactical wing
h. Mutual support
i. Communications
j. Recovery to pattern
k. Landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-27	T-45/FC	ON-11X	OPERATIONAL NAVIGATION ELEVEN CHECK	1.2

Brief:

a. QOD
b. Two-plane armed reconnaissance missions
c. Attacks on approved targets of opportunity with simulated ordnance
d. Visual reconnaissance
e. Lookout doctrine
f. Response to bandit

Review:

a. ONAV planning
b. Route entry
c. Recognize checkpoints
d. Knowledge of route
e. Tactical lead
f. Tactical wing
g. Mutual support
h. Target description
i. Target attack
j. Communications
k. Recovery to pattern
l. Roll-and-go, full flaps/slats
m. Landing(s)

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-28	T-45/ SOLO	ON-12	OPERATIONAL NAVIGATION TWELVE	1.2

Brief:

a. QOD
b. Lookout doctrine
c. Response to bandit
d. Pattern stall/recovery

Practice:

a. ONAV planning
b. Route entry
c. Recognize checkpoints
d. Knowledge of route
e. Tactical lead
f. Tactical wing
g. Mutual support
h. Target description
i. Target attack
j. Communications
k. Recovery to pattern
l. Landing(s) (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-29	T-45/FC	ON-13	OPERATIONAL NAVIGATION THIRTEEN	1.2

Brief:

a. QOD
b. Wingman deconfliction responsibilities
c. Target area deconfliction

Introduce:

a. Low-level tactical formation
b. Low-level target attacks

Practice:

a. ONAV planning
b. Route entry
c. Interpret charts
d. Recognize checkpoints
e. Knowledge of route
f. Tactical lead
g. Tactical wing
h. Mutual support
i. Timing corrections
j. Target description
k. Communications
l. Recovery to pattern
m. Landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-30	T-45/FC	ON-14	OPERATIONAL NAVIGATION FOURTEEN	1.2

Brief:

a. QOD
b. Wingman deconfliction responsibilities
c. Target area deconfliction

Practice:

a. ONAV planning
b. Route entry
c. Interpret charts
d. Recognize checkpoints
e. Knowledge of route
f. Low-level tactical formation
g. Low-level target attacks
h. Target description
i. Tactical lead
j. Mutual support
k. Timing corrections
l. Tactical wing
m. Communications
n. Recovery to pattern
o. Precautionary approach (if flown)
p. Roll-and-go, full flaps/slats
q. Landing(s)

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-31	T-45/ SOLO	AN-19	AIRWAYS NAVIGATION NINETEEN	1.5

Brief:

a. QOD
b. In-flight emergencies

Practice:

a. Complete DD 175
b. Single-engine jet log
c. Enroute descent
d. TACAN/VOR DME approach
e. PAR approach
f. ILS approach

NOTES:

(1) Only “Headwork” will be graded by a qualified instructor.

(2) AN-19 and AN-20 may be flown as an out-and-in or as a cross-country but must be scheduled consecutively.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
06-32	T-45/ SOLO	AN-20	AIRWAYS NAVIGATION TWENTY	1.5

Brief:

a. QOD
b. In-flight emergencies

Practice:

a. Complete DD 175
b. Single-engine jet log
c. Enroute descent
d. TACAN/VOR DME approach
e. PAR approach
f. ILS approach

NOTES:

(1) Only “Headwork” will be graded by a qualified instructor.

(2) AN-19 and AN-20 may be flown as an out-and-in or as a cross-country but must be scheduled consecutively.

MODULE 07

AIR COMBAT MANEUVERING AND OUT-OF-CONTROL FLIGHT

OBJECTIVE: Introduce the student to the air combat maneuvering environment with emphasis on stall/out-of-control flight avoidance techniques, combat spread formation, lookout doctrine, and offensive and defensive maneuvering during 1 v 1 and 2 v 1 engagements.

Includes: 1 v 1 ACM Flight Procedures (ACMFP-01 through ACMFP-05X), Out-of-Control Flight simulator and flight (OCF-03S and OCF-04X), 2 v 1 ACM Flight Procedures (ACMFP-06 and ACMFP-07X), and Air Combat Maneuvering flights (ACM-01 through ACM-15).

NOTE 1: "Headwork" and "Procedures" are the only graded items on OCF-04X.

NOTE 2: OCF-04X must be flown within 2 weeks prior to ACM-01.

NOTE 3: Students may be expected to lead return flight to base during ACM stage at IP's discretion.

NOTE 4: Jacket review required prior to check flights.

NOTE 5: The day VFR landing pattern must be graded for each student who has not completed the CQ stage.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-01	MIL	ACMFP-01	INTRODUCTION TO ACM	0.8
07-02	MIL	ACMFP-02	ACM 1 V 1 OFFENSIVE MANEUVERING	1.0
07-03	MIL	ACMFP-03	ACM 1 V 1 DEFENSIVE MANEUVERING	1.0
07-04	MIL	ACMFP-04	ACM 1 V 1 NEUTRAL STARTS	0.8
07-05	CAI	ACMFP-05X	ACM 1 V 1 STAGE EXAMINATION	1.0
07-06	OFT	OCF-03S	OUT-OF-CONTROL FLIGHT THREE SIMULATOR	1.0
07-07	T-45/FC	OCF-04X	OUT-OF-CONTROL FLIGHT FOUR CHECK	1.2

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-08	T-45/FC	ACM-01	AIR COMBAT MANEUVERING ONE	1.1
07-09	T-45/FC	ACM-02	AIR COMBAT MANEUVERING TWO	1.1
07-10	T-45/FC	ACM-03X	AIR COMBAT MANEUVERING THREE CHECK	1.1
07-11	T-45/ SOLO	ACM-04	AIR COMBAT MANEUVERING FOUR	1.1
07-12	T-45/FC	ACM-05	AIR COMBAT MANEUVERING FIVE	1.1
07-13	T-45/FC	ACM-06X	AIR COMBAT MANEUVERING SIX CHECK	1.1
07-14	MIL	ACMFP-06	AIR COMBAT MANEUVERING 2 V 1 FLIGHT PROCEDURES	2.7
07-15	CAI	ACMFP-07X	AIR COMBAT MANEUVERING 2 V 1 STAGE EXAMINATION	1.0
07-16	T-45/ SOLO	ACM-07	AIR COMBAT MANEUVERING SEVEN	1.1
07-17	T-45/FC	ACM-08	AIR COMBAT MANEUVERING EIGHT	1.1
07-18	T-45/ SOLO	ACM-09	AIR COMBAT MANEUVERING NINE	1.1
07-19	T-45/ SOLO	ACM-10	AIR COMBAT MANEUVERING TEN	1.1
07-20	T-45/FC	ACM-11	AIR COMBAT MANEUVERING ELEVEN	1.1
07-21	T-45/FC	ACM-12	AIR COMBAT MANEUVERING TWELVE	1.1
07-22	T-45/FC	ACM-13X	AIR COMBAT MANEUVERING THIRTEEN CHECK	1.1
07-23	T-45/ SOLO	ACM-14	AIR COMBAT MANEUVERING FOURTEEN	1.1
07-24	T-45/ SOLO	ACM-15	AIR COMBAT MANEUVERING FIFTEEN	1.1

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-06	OFT	OCF-03S	OUT-OF-CONTROL FLIGHT THREE SIMULATOR	1.0

Brief:

a. QOD
b. Runaway trim
c. Engine flameout
d. Ejection situations
e. Locked-in compressor stall
f. Airstart
g. NATOPS chapter II

Practice:

a. In-flight emergencies
b. High AOA/deep stall investigation/ rudder-induced departure
c. Low airspeed recovery (70 degrees noseup)
d. Low airspeed recovery (110 degrees noseup)
e. Lateral stick adverse yaw departure
f. Stuck throttle approach
g. Precautionary approach
h. Blown tire on landing
i. Field-arrested landing with blown tire
j. Airstart
k. Pattern stall/recovery

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-07	T-45/FC	OCF-04X	OUT-OF-CONTROL FLIGHT FOUR CHECK	1.2

Brief:

a. QOD
b. Departure/recovery procedures
c. Spin recovery procedures
d. Lateral stick adverse yaw departure procedures
e. Runaway trim
f. Engine flameout
g. Ejection situations
h. Minimum turn radius
i. T-45 performance characteristics
j. NATOPS chapter II

Introduce:

a. Acceleration checks:
   1 g straight/level
   Unloaded acceleration (Check AOA)
b. Extension/pitchback maneuver
c. Timed turns (min radius):
   14 units AOA
   17 units AOA
   18-21 units AOA
d. Other 1 v 0 maneuvers as briefed

Review:

a. High AOA/deep stall investigation/ rudder-induced departure
b. Low airspeed recovery (70 degrees noseup)
c. Low airspeed recovery (110 degrees noseup)
d. Lateral stick adverse yaw departure
e. Precautionary approach
f. Crosswind landing(conditions permitting)
g. Landing(s)

NOTES:

(1) "Headwork" and "Procedures" are the only graded items.

(2) OCF-04X must be flown within 2 weeks prior to ACM-01.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-08	T-45/FC	ACM-01	AIR COMBAT MANEUVERING ONE	1.1

Brief:

a. QOD
b. HUD air-to-air mode setup
c. Departure recovery procedures
d. Spin recovery procedures
e. Training rules
f. Knock-it-off procedures

Demonstrate:

a. Snapshot drill
b. Horizontal scissors
c. Rolling scissors
d. Offensive break turn

Introduce (Offensive maneuvering):

a. Communications
b. Snapshot drill
c. Horizontal scissors
d. Rolling scissors
e. 6000-ft perch
f. Break turn exercise (horizontal and vertical)
g. Training rules

Practice:

a. Formation
b. Tactical formation
c. Landing pattern
d. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-09	T-45/FC	ACM-02	AIR COMBAT MANEUVERING TWO	1.1

Brief:

a. QOD
b. Offensive bubble entry
c. Attack window recognition

Introduce:

a. Sight/lookout doctrine
b. Aggressiveness
c. Situational awareness

Practice (Offensive maneuvering):

a. Formation
b. Tactical formation
c. Communications
d. Training rules
e. Snapshot drill
f. Horizontal scissors
g. Rolling scissors
h. 6000-ft perch
i. Break turn exercise (horizontal and vertical)
j. Landing pattern
k. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-10	T-45/FC	ACM-03X	AIR COMBAT MANEUVERING THREE CHECK	1.1

Brief:

a. QOD
b. Training rules
c. GLOC prevention
d. Deck transitions

Review (Offensive maneuvering):

a. Formation
b. Communications
c. Tactical formation
d. Snapshot drill
e. Horizontal scissors
f. Rolling scissors
g. 6000-ft perch
h. Break turn exercise (horizontal and vertical)
i. Sight/lookout doctrine
j. Aggressiveness
k. Situational awareness
l. Training rules
m. Field entry/lead (if done)
n. Precautionary approach
o. Landing pattern
p. Touch-and-go landings
q. Roll-and-go, full flaps/slats (if done)

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-11	T-45/ SOLO	ACM-04	AIR COMBAT MANEUVERING FOUR	1.1

Brief:

a. QOD
b. Training rules
c. Energy management
d. Pattern stall/recovery

Practice (Offensive maneuvering):

a. Formation
b. Communications
c. Tactical formation
d. Snapshot drill
e. Horizontal scissors
f. Rolling scissors
g. 6000-ft perch
h. Break turn exercise
i. Sight/lookout doctrine
j. Aggressiveness
k. Situational awareness
l. Training rules
m. Field entry/lead (if done)
n. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-12	T-45/FC	ACM-05	AIR COMBAT MANEUVERING FIVE	1.1

Brief:

a. QOD
b. Energy management
c. Deck awareness
d. Bugout
e. Training rules
f. Deck transitions

Demonstrate:

a. Bugout
b. Defensive break turns

Introduce (Defensive maneuvering):

a. Bugout
b. Snapshot drill (defensive)
c. Horizontal scissors (defensive)
d. Rolling scissors (defensive)
e. 6000-ft perch
f. Break turn exercise (defensive)

Practice:

a. Formation
b. Communications
c. Tactical formation
d. Sight/lookout doctrine
e. Aggressiveness
f. Situational awareness
g. Training rules
h. Field entry/lead (if done)
i. Landing pattern
j. Touch-and-go landings

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-13	T-45/FC	ACM-06X	AIR COMBAT MANEUVERING SIX CHECK	1.1

Brief:

a. QOD
b. Training rules
c. One-circle engagement
d. Two-circle engagement
e. Energy excursions

Demonstrate:

1 v 1 (fuel permitting)
- Two-circle
- One-circle

Review (Defensive maneuvering):

a. Formation
b. Communications
c. Tactical formation
d. Snapshot drill
e. Horizontal scissors
f. Rolling scissors
g. 6000-ft perch
h. Break turn exercise
i. Bugout
j. Sight/lookout doctrine
k. Aggressiveness
l. Situational awareness
m. Training rules
n. Field entry/lead (if done)
o. Precautionary approach
p. Landing pattern
q. Touch-and-go landings
r. Roll-and-go, full flaps/slats (if done)

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-16	T-45/ SOLO	ACM-07	AIR COMBAT MANEUVERING SEVEN	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies

Practice (Defensive maneuvering):

a. Formation
b. Communications
c. Tactical formation
d. Snapshot drill
e. Horizontal scissors
f. Rolling scissors
g. 6000-ft perch
h. Break turn exercise
i. Bugout
j. Sight/lookout doctrine
k. Aggressiveness
l. Situational awareness
m. Training rules
n. Field entry/lead (if done)
o. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-17	T-45/FC	ACM-08	AIR COMBAT MANEUVERING EIGHT	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies
d. High aspect ACM
e. One-circle engagement
f. Two-circle engagement
g. Energy management
h. Controlling the merge
i. Out-of-plane maneuvering

Demonstrate:

a. High aspect one-circle engagement
b. High aspect two-circle engagement

Introduce (Neutral maneuvering):

a. High aspect one-circle engagement
b. High aspect two-circle engagement
c. Neutral abeam start
d. Neutral butterfly start
e. Neutral unknown start (BVR)
f. High aspect one-circle engagement (nose-low entry to initial merge)

Practice:

a. Formation
b. Communications
c. Tactical formation
d. Snapshot drill (offensive and defensive)
e. Sight/lookout doctrine
f. Aggressiveness
g. Situational awareness
h. Training rules
i. Flight lead (if done)
j. Precautionary approach
k. Landings

NOTES:

(1) Jacket review required.

(2) May be flown as ACM-08 student training sortie or dedicated lead sortie.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-18	T-45/ SOLO	ACM-09	AIR COMBAT MANEUVERING NINE	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies
d. High aspect ACM
e. One-circle engagement
f. Two-circle engagement
g. Energy management
h. Controlling the merge

Practice (neutral maneuvering):

a. Formation
b. Communications
c. Tactical formation
d. Snapshot drill (offensive and defensive)
e. Offensive ACM
f. Defensive ACM
g. Neutral abeam start
h. Neutral butterfly start
i. Neutral unknown start (BVR) (if done)
j. Sight/lookout doctrine
k. Aggressiveness
l. Situational awareness
m. Training rules
n. Flight lead (if done)
o. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-19	T-45/ SOLO	ACM-10	AIR COMBAT MANEUVERING TEN	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies
d. High aspect ACM
e. One-circle engagement
f. Two-circle engagement
g. Energy management
h. Controlling the merge

Practice (neutral maneuvering):

a. Formation
b. Communications
c. Tactical formation
d. Snapshot drill (offensive and defensive)
e. Offensive ACM
f. Defensive ACM
g. Neutral abeam start
h. Neutral butterfly start
i. Neutral unknown start (BVR if done)
j. Sight/lookout doctrine
k. Aggressiveness
l. Situational awareness
m. Training rules
n. Flight lead (if done)
o. Landings (not graded)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-20	T-45/FC	ACM-11	AIR COMBAT MANEUVERING ELEVEN	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies
d. Multiplane environment
e. Situational awareness

Demonstrate:

a. Counterflow X 2
b. Multi-switch X 2

Introduce (2 v 1):

a. Engagement voice calls
b. Call the bandit
c. No switch X 2
d. Counterflow X 2
e. Multi-switch X 2 (fuel permitting)

Practice (2 v 1):

a. Formation
b. Tactical formation
c. Mutual support
d. Engaged maneuvering
e. Sight/lookout doctrine
f. Aggressiveness
g. Situational awareness
h. Training rules
i. Flight lead (if done)
j. Landing pattern
k. Touch-and-go landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-21	T-45/FC	ACM-12	AIR COMBAT MANEUVERING TWELVE	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies
d. Non-scripted gameplans

Demonstrate:

a. Abeam VID X 2
b. BVR engagement

Introduce:

a. Abeam VID X 2
b. BVR engagement (fuel permitting)

Practice (2 v 1):

a. Formation
b. Engagement voice calls
c. Tactical formation
d. Mutual support
e. Call the bandit (if done)
f. No switch X 2
g. Counterflow X 2
h. Multi-switch X 2
i. Engaged maneuvering
j. Sight/lookout doctrine
k. Aggressiveness
l. Situational awareness
m. Training rules
n. Flight lead (if done)
o. Landing pattern
p. Touch-and-go landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-22	T-45/FC	ACM-13X	AIR COMBAT MANEUVERING THIRTEEN CHECK	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies
d. BVR admin
e. BVR game plans

Introduce:

BVR engagement (if not previously done)

Review (2 v 1):

a. Formation
b. Engagement voice calls
c. Tactical formation
d. Mutual support
e. Engaged maneuvering
f. Call the bandit (if done)
g. No switch X 2
h. Counterflow X 2
i. Multi-switch X 2
j. Abeam VID X 2
k. BVR engagement
l. Sight/lookout doctrine
m. Aggressiveness
n. Situational awareness
o. Training rules
p. Flight lead (if done)
q. Precautionary approach
r. Roll-and-go, full flaps/slats
s. Landing(s)

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-23	T-45/ SOLO	ACM-14	AIR COMBAT MANEUVERING FOURTEEN	1.1

Brief:

a. QOD
b. Training Rules
c. In-flight emergencies
d. BVR game plans

Practice (2 v 1):

a. Formation
b. Engagement voice calls
c. Tactical formation
d. Mutual support
e. Call the bandit (if done)
f. Counterflow
g. Multi-switch (if done)
h. Engaged maneuvering
i. Sight/lookout doctrine
j. BVR engagement
k. Aggressiveness
l. Situational awareness
m. Training rules
n. Landing(s)

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
07-24	T-45/ SOLO	ACM-15	AIR COMBAT MANEUVERING FIFTEEN	1.1

Brief:

a. QOD
b. Training rules
c. In-flight emergencies
d. BVR game plans

Practice:

a. Formation
b. Engagement voice calls
c. Tactical formation
d. Mutual support
e. Engaged maneuvering
f. Engagements (IP discretion)
g. Sight/lookout doctrine
h. Aggressiveness
i. Situational awareness
j. Training rules
k. Landing(s)

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MODULE 08

CARRIER QUALIFICATION - STRIKE

OBJECTIVE: Prepare the student for carrier-based operations in swept wing aircraft with emphasis on pattern, interval, power control, attitude control, airspeed control, glideslope control, corrections, and carrier sense. Performance events/flights are designed to perfect student skills in preparation for a field qualification and a qualification flight at the ship.

Includes: Carrier Qualifications Flight Procedures (CQFP-04 through CQFP-06X), one Night Formation flight (NFORM-05), CQ simulators (CQ-01S and CQ-02S), Emergency Procedures simulator (EP-12S), and CQ flights (CQ-03X through CQ-15X). CQFP-05 is the Ship’s Brief.

NOTE 1: A maximum of three (3) CQ flights may be scheduled in one day.

NOTE 2: A day or night front seat landing within the previous three calendar days is a prerequisite for a night CQ solo flight.

NOTE 3: All CQ night flights shall take off no earlier than 30 minutes after official sunset.

NOTE 4: Night solo flights require an operating radar altimeter.

NOTE 5: At least 2 night FCLPs under LSO control are required.

NOTE 6: LSO talkdown passes may be flown anytime after CQ-05 but prior to CQ-14X.

NOTE 7: CQ-15X will weigh 50% of the student's total CQ grade. CQ-01S and CQ-02S will weigh 12.5% and all remaining FCLP/CQ will weigh 37.5% of the stage grade.

NOTE 8: Fourteen (14) graded passes are required, of which ten will be traps to complete CQ-15X.

NOTE 9: Jacket review required prior to check flights.

NOTE 10: A minimum of six FCLP-type landings is required on each flight prior to CQ-14X.

NOTE 11: IFLOLS should be used to the maximum extent possible.

NOTE 12: Night FCLPs shall not be flown before CQ-06.

NOTE 13: NFORM-05 shall be completed within 2 weeks prior to CQ-08.

NOTE 14: CQ-03X shall be flown within 2 weeks prior to CQ-04.

NOTE 15: EP-12S should be flown after CQ-08.

NOTE 16: CQ-01S and CQ-02S may be flown anytime prior to CQ-14X.

NOTE 17: A minimum of 320 FCLP-type landings in the T-45 are required prior to CQ-04.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-01	MIL	CQFP-04	CQ SHIPBOARD PROCEDURES	1.0
08-02	T-45/FC	NFORM-05	NIGHT FORMATION FIVE	1.4
08-03	OFT	CQ-01S	CARRIER QUALIFICATION ONE SIMULATOR	1.3
08-04	OFT	CQ-02S	CARRIER QUALIFICATION TWO SIMULATOR	1.5
08-05	T-45/FC	CQ-03X	CARRIER QUALIFICATION THREE CHECK	0.5
08-06	T-45/ SOLO	CQ-04	CARRIER QUALIFICATION FOUR	0.6
08-07	T-45/ SOLO	CQ-05	CARRIER QUALIFICATION FIVE	0.6
08-08	T-45/ SOLO	CQ-06	CARRIER QUALIFICATION SIX	0.6
08-09	T-45/ SOLO	CQ-07	CARRIER QUALIFICATION SEVEN	0.6
08-10	T-45/ SOLO	CQ-08	CARRIER QUALIFICATION EIGHT	0.6
08-11	T-45/ SOLO	CQ-09	CARRIER QUALIFICATION NINE	0.6
08-12	T-45/ SOLO	CQ-10	CARRIER QUALIFICATION TEN	0.6
08-13	OFT	EP-12S	EMERGENCY PROCEDURES TWELVE SIMULATOR	1.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-14	T-45/ SOLO	CQ-11	CARRIER QUALIFICATION ELEVEN	0.6
08-15	T-45/ SOLO	CQ-12	CARRIER QUALIFICATION TWELVE	0.6
08-16	T-45/ SOLO	CQ-13	CARRIER QUALIFICATION THIRTEEN	0.6
08-17	T-45/ SOLO	CQ-14X	CARRIER QUALIFICATION FOURTEEN CHECK	0.6
08-18	MIL	CQFP-05	SHIP'S BRIEF	3.0
08-19	CAI	CQFP-06X	SHIP'S BRIEF EXAMINATION	1.0
08-20	T-45/ SOLO	CQ-15X	CARRIER QUALIFICATION FIFTEEN CHECK	4.2

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-02	T-45/FC	NFORM-05	NIGHT FORMATION FIVE	1.4

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Individual takeoff
d. Formation lead
e. TACAN rendezvous (2 minimum)
f. IFR parade
g. Crossunder(s)
h. Lead change
i. Individual recovery
j. Precision approach
k. VFR transition to the ball
l. Touch-and-go landings

NOTE: A minimum of five FCLP-type landings w/OLS are required for completion.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-03	OFT	CQ-01S	CARRIER QUALIFICATION ONE SIMULATOR	1.3

Brief:

a. QOD
b. Delta pattern (CV vs field)
c. Case I arrival/holding (CATCC vs tower)
d. Shipboard alignment (T-45C only)
e. Use of Fresnel/IFLOLS lights by LSO in NORDO, BINGO, and waveoff situations
f. Case I/II departure

Introduce:

a. Case I recovery
b. Bolter with blown tire
c. Carrier arrestment with blown tire
d. Case I departure

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Power control
g. Lineup control
h. Error detection/correction
i. Bolter/touch-and-go technique
j. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-04	OFT	CQ-02S	CARRIER QUALIFICATION TWO SIMULATOR	1.5

Brief:

a. QOD
b. Preflight/ground ops
c. Communications
d. Pattern entry
e. Shore-to-ship checklist
f. Ship-to-shore checklist
g. BINGO card data
h. CV term definitions (Note is applicable)

Introduce:

Case II recovery

Practice:

a. Case I recovery
b. Pattern
c. Start position
d. Bolter/touch-and-go technique
e. Response to waveoff and technique
f. Pattern stall/recovery
g. Carrier arrestment
h. Postarrestment procedures
i. Catapult hookup
j. Catapult launch procedures
k. Pattern entry from catapult launch
l. Case I/II departure
m. Communications
n. CQ-related emergencies
o. Bolter with blown tire
p. Carrier arrestment with blown tire
q. BINGO profile

NOTE: Define terms "Pigeons, Mother, Marshal, Angels, BRC, Final bearing, push times, see me, see you."

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-05	T-45/FC	CQ-03X	CARRIER QUALIFICATION THREE CHECK	0.5

Brief:

QOD

Review:

a. Touch-and-go, full flaps/slats
b. Roll-and-go, full flaps/slats
c. Full-stop landing

NOTES:

(1) CQ-03X shall be flown within two weeks prior to CQ-04.

(2) LSO not required on station.

(3) Shall be flown at night.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-06	T-45/ SOLO	CQ-04	CARRIER QUALIFICATION FOUR	0.6

Brief:

a. QOD
b. Delta pattern
c. Preflight
d. Ground procedures
e. Pattern entry
f. Communications

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-07	T-45/ SOLO	CQ-05	CARRIER QUALIFICATION FIVE	0.6

Brief:

a. QOD
b. Pattern procedures
c. Arrestment procedures
d. Case I procedures
e. Trend analysis

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-08	T-45/ SOLO	CQ-06	CARRIER QUALIFICATION SIX	0.6

Brief:

a. QOD
b. Deck procedures

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-09	T-45/ SOLO	CQ-07	CARRIER QUALIFICATION SEVEN	0.6

Brief:

a. QOD
b. BINGO/divert procedures
c. GINA failure/NGS/SAHRS

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-10	T-45/ SOLO	CQ-08	CARRIER QUALIFICATION EIGHT	0.6

Brief:

a. QOD
b. Departure procedures
c. RTB procedures

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-11	T-45/ SOLO	CQ-09	CARRIER QUALIFICATION NINE	0.6

Brief:

a. QOD
b. Carrier-related emergency
c. Case II arrival procedures

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-12	T-45/ SOLO	CQ-10	CARRIER QUALIFICATION TEN	0.6

Brief:

a. QOD
b. Carrier pattern

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-13	OFT	EP-12S	EMERGENCY PROCEDURES TWELVE SIMULATOR	1.5

Brief:

a. QOD
b. Carrier-related EPs
c. Short-field arrestment

Introduce:

a. Ship arrival procedures Case II
b. Catapult malfunctions--cold/soft

Practice:

a. Case II recovery
b. Pattern
c. Start position
d. Bolter/touch-and-go technique
e. Response to waveoff and technique
f. Carrier arrestment
g. Postarrestment procedures
h. Catapult hookup
i. Catapult launch procedures
j. Suspend procedures
k. Pattern entry from catapult launch
l. Pattern stall/recovery
m. Communications
n. Brake failure on deck
o. NWS failure on deck
p. Communications failure on deck
q. Launch bar malfunction
r. Communications failure in pattern
s. CQ-related emergencies
t. Ejection
u. Bolter with blown tire
v. Carrier arrestment with blown tire
w. BINGO profile
x. Short field arrestment

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-14	T-45/ SOLO	CQ-11	CARRIER QUALIFICATION ELEVEN	0.6

Brief:

a. QOD
b. Carrier pattern

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-15	T-45/ SOLO	CQ-12	CARRIER QUALIFICATION TWELVE	0.6

Brief:

a. QOD
b. Carrier pattern

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-16	T-45/ SOLO	CQ-13	CARRIER QUALIFICATION THIRTEEN	0.6

Brief:

QOD

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-17	T-45/ SOLO	CQ-14X	CARRIER QUALIFICATION FOURTEEN CHECK	0.6

Brief:

QOD

Review:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
08-20	T-45/ SOLO	CQ-15X	CARRIER QUALIFICATION FIFTEEN CHECK	4.2

Brief:

a. QOD
b. Carrier qualification procedures

Review:

a. Formation
b. Pattern
c. Start position
d. AOA control
e. Glideslope control
f. Power control
g. Lineup control
h. Error detection/correction
i. Response to LSO calls
j. Bolter/touch-and-go technique
k. Response to waveoff and technique
l. Carrier flight deck procedures
m. Communications
n. Catapult launch procedures

NOTE: Jacket review required.

INTERMEDIATE E2/C2

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MODULE 09

E2/C2 TRANSITION

OBJECTIVE: Reinforce Familiarization, Night Familiarization and Formation skills and procedures in preparation for carrier qualification stage.

Includes: Two Familiarization flights (FAM-21 and FAM-22), one Night Familiarization flight (NFAM-05) and two Formation flights (FORM-26 and FORM-27).

NOTE 1: Module 09 shall be complete prior to Module 10.

NOTE 2: Events may be completed in any order.

NOTE 3: A minimum of 270 FCLP-type landings in the T-45 are required prior to CQ-19.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
09-01	T-45/FC	FAM-21	FAMILIARIZATION TWENTY-ONE	0.7
09-02	T-45/FC	FAM-22	FAMILIARIZATION TWENTY-TWO	0.7
09-03	T-45/FC	NFAM-05	NIGHT FAMILIARIZATION FIVE	0.8
09-04	T-45/FC	FORM-26	FORMATION TWENTY-SIX	1.5
09-05	T-45/FC	FORM-27	FORMATION TWENTY-SEVEN	1.5

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
09-01	T-45/FC	FAM-21	FAMILIARIZATION TWENTY-ONE	0.7

Brief:

a. QOD
b. Self-contained, straight-in approach

Practice:

a. Recovery
b. Touch-and-go, full flaps/slats
c. Touch-and-go, no flaps/slats
d. Roll-and-go, full flaps/slats
e. Full-stop landing

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
09-02	T-45/FC	FAM-22	FAMILIARIZATION TWENTY-TWO	0.7

Brief:

a. QOD
b. Flight emergency resources

Practice:

a. Recovery
b. Touch-and-go, full flaps/slats
c. Touch-and-go, no flaps/slats
d. Roll-and-go, full flaps/slats
e. Full-stop landing

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
09-03	T-45/FC	NFAM-05	NIGHT FAMILIARIZATION FIVE	0.8

Brief:

a. QOD
b. Night instrument scan

Practice:

a. Recovery to VFR landing pattern
b. Landing pattern
c. Touch-and-go, full flaps/slats
d. Roll-and-go, full flaps/slats
e. Full-stop landing

NOTE: A minimum of 10 FCLP-type landings with an OLS are required for completion.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
09-04	T-45/FC	FORM-26	FORMATION TWENY-SIX	1.5

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Lead
d. Takeoff/joinup (section, interval, TACAN)
e. Parade position
f. Breakup/rendezvous (2 x 250 desired)
g. Lead change
h. Individual recovery
i. Instrument approach
j. Landings

NOTE: Student will brief this flight.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
09-05	T-45/FC	FORM-27	FORMATION TWENTY-SEVEN	1.5

Brief:

QOD

Practice:

a. Formation ground OPS
b. Formation communications
c. Lead
d. Takeoff/joinup (section, interval, TACAN)
e. Parade position
f. Breakup/rendezvous (2 x 250 desired)
g. Lead change
h. Individual recovery
i. Instrument approach
j. Landings

NOTE: Student will brief this flight.

MODULE 10

CARRIER QUALIFICATION – INTERMEDIATE E2/C2

OBJECTIVE: Prepare the student for carrier-based operations in swept wing aircraft with emphasis on pattern, interval, power control, attitude control, airspeed control, glideslope control, corrections, and carrier sense. Performance events/flights are designed to perfect student skills in preparation for a field qualification and two qualification flights at the ship.

Includes: Carrier Qualification Flight Procedures (CQFP-07 through CQFP-09X), Emergency Procedures simulator (EP-13S), and Carrier Qualification simulator and flights (CQ-16S through CQ-32X). CQFP-08 is the Ship's Brief.

NOTE 1: CQ-18X should be flown within two weeks prior to CQ-19.

NOTE 2: EP-13S should be flown after CQ-23.

NOTE 3: A maximum of three CQ flights may be scheduled in one day.

NOTE 4: A day or night front seat landing within the previous three calendar days is a prerequisite for a night CQ solo flight.

NOTE 5: All CQ night flights shall take off no earlier than 30 minutes after official sunset.

NOTE 6: Night CQ shall not be flown before CQ-21.

NOTE 7: Night solo flights require an operating radar altimeter.

NOTE 8: At least two night FCLPs under LSO control are required.

NOTE 9: LSO talkdown passes may be flown anytime after CQ-22 but prior to CQ-31X.

NOTE 10: Fourteen graded passes, of which, 10 will be traps, are required to complete CQ-32X.

NOTE 11: CQ-32X will weigh 50 percent of CQ stage; CQ-16S and CQ-17S will weigh 12.5 percent; and all remaining FCLP/CQ will weight 37.5 percent of the stage grade.

NOTE 12: Jacket review required prior to check flights.

NOTE 13: IFLOLS should be used to the maximum extent possible.

NOTE 14: A minimum of six FCLP-type landings are required on CQ-19 through CQ-31X.

NOTE 15: A minimum of 270 FCLP-type landings in the T-45 are required prior to CQ-19.

NOTE 16: CQ-16S and CQ-17S may be flown anytime prior to CQ-31X.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-01	MIL	CQFP-07	CARRIER QUALIFICATION SHIPBOARD PROCEDURES	1.0
10-02	OFT	CQ-16S	CARRIER QUALIFICATION SIXTEEN SIMULATOR	1.3
10-03	OFT	CQ-17S	CARRIER QUALIFICATION SEVENTEEN SIMULATOR	1.5
10-04	T-45/FC	CQ-18X	CARRIER QUALIFICATION EIGHTEEN CHECK	0.8
10-05	T-45/ SOLO	CQ-19	CARRIER QUALIFICATION NINETEEN	0.6
10-06	T-45/ SOLO	CQ-20	CARRIER QUALIFICATION TWENTY	0.6
10-07	T-45/ SOLO	CQ-21	CARRIER QUALIFICATION TWENTY-ONE	0.6
10-08	T-45/ SOLO	CQ-22	CARRIER QUALIFICATION TWENTY-TWO	0.6
10-09	T-45/ SOLO	CQ-23	CARRIER QUALIFICATION TWENTY-THREE	0.6
10-10	T-45/ SOLO	CQ-24	CARRIER QUALIFICATION TWENTY-FOUR	0.6
10-11	T-45/ SOLO	CQ-25	CARRIER QUALIFICATION TWENTY-FIVE	0.6
10-12	T-45/ SOLO	CQ-26	CARRIER QUALIFICATION TWENTY-SIX	0.6

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-13	OFT	EP-13S	EMERGENCY PROCEDURES THIRTEEN SIMULATOR	1.5
10-14	T-45/ SOLO	CQ-27	CARRIER QUALIFICATION TWENTY-SEVEN	0.6
10-15	T-45/ SOLO	CQ-28	CARRIER QUALIFICATION TWENTY-EIGHT	0.6
10-16	T-45/ SOLO	CQ-29	CARRIER QUALIFICATION TWNETY-NINE	0.6
10-17	T-45/ SOLO	CQ-30	CARRIER QUALIFICATION THIRTY	0.6
10-18	T-45/ SOLO	CQ-31X	CARRIER QUALIFICATION THRITY-ONE CHECK	0.6
10-19	MIL	CQFP-08	SHIP’S BRIEF	3.0
10-20	CAI	CQFP-09X	SHIP’S BRIEF EXAMINATION	1.0
10-21	T-45/ SOLO	CQ-32X	CARRIER QUALIFICATION THIRTY-TWO CHECK	4.2

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-02	OFT	CQ-16S	CARRIER QUALIFICATION SIXTEEN SIMULATOR	1.3

Brief:

a. QOD
b. Delta pattern (CV vs field)
c. Case I arrival/holding (CATCC vs tower)
d. Shipboard alignment (T-45C only)
e. Use of Fresnel/IFLOLS lights by LSO in NORDO, BINGO, and waveoff situations
f. Case I/II departure

Introduce:

a. Case I recovery
b. Bolter with blown tire
c. Carrier arrestment with blown tire
d. Case I departure

Practice:

a. Communications
b. Course rules/pattern entry procedures
c. Pattern
d. Start position
e. AOA control
f. Power control
g. Lineup control
h. Error detection/correction
i. Bolter/touch-and-go technique
j. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-03	OFT	CQ-17S	CARRIER QUALIFICATION SEVENTEEN SIMULATOR	1.5

Brief:

a. QOD
b. Preflight/ground ops
c. Communications
d. Pattern entry
e. Shore-to-ship checklist
f. Ship-to-shore checklist
g. BINGO card data
h. CV term definitions (Note is applicable)

Introduce:

Case II recovery

Practice:

a. Case I recovery
b. Pattern
c. Start position
d. Bolter/touch-and-go technique
e. Response to waveoff and technique
f. Pattern stall/recovery
g. Carrier arrestment
h. Postarrestment procedures
i. Catapult hookup
j. Catapult launch procedures
k. Pattern entry from catapult launch
l. Case I/II departure
m. Communications
n. CQ-related emergencies
o. Bolter with blown tire
p. Carrier arrestment with blown tire
q. BINGO profile

NOTE: Define terms "Pigeons, Mother, Marshal, Angels, BRC, Final bearing, push times, see me, see you."

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-04	T-45/FC	CQ-18X	CARRIER QUALIFICATION EIGHTEEN CHECK	0.8

Brief:

QOD

Review:

a. Recovery to VFR landing pattern
b. VFR landing pattern
c. Touch-and-go, full flaps/slats
d. Full-stop landing

NOTES:

(1) CQ-18X shall be flown within two weeks prior to CQ-19.

(2) No LSO required.

(3) Shall be flown at night.

(4) A minimum of 10 landings with an OLS are required for completion.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-05	T-45/ SOLO	CQ-19	CARRIER QUALIFICATION NINETEEN	0.6

Brief:

a. QOD
b. Communications
c. Preflight/ground OPS
d. Pattern entry

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-06	T-45/ SOLO	CQ-20	CARRIER QUALIFICATION TWENTY	0.6

Brief:

a. QOD
b. Delta pattern
c. Preflight
d. Ground procedure
e. Pattern entry
f. Communications

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-07	T-45/ SOLO	CQ-21	CARRIER QUALIFICATION TWENTY-ONE	0.6

Brief:

a. QOD
b. Pattern procedures
c. Arrestment procedures
d. Case I procedures
e. Trend analysis

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-08	T-45/ SOLO	CQ-22	CARRIER QUALIFICATION TWENTY-TWO	0.6

Brief:

a. QOD
b. Flight deck procedures

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-09	T-45/ SOLO	CQ-23	CARRIER QUALIFICATION TWENTY-THREE	0.6

Brief:

a. QOD
b. BINGO/divert procedures
c. SAHRS failure

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-10	T-45/ SOLO	CQ-24	CARRIER QUALIFICATION TWENTY-FOUR	0.6

Brief:

a. QOD
b. Departure procedures
c. RTB procedure

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-11	T-45/ SOLO	CQ-25	CARRIER QUALIFICATION TWENTY-FIVE	0.6

Brief:

a. QOD
b. Carrier-related emergencies
c. Case II arrival procedures

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-12	T-45/ SOLO	CQ-26	CARRIER QUALIFICATION TWENTY-SIX	0.6

Brief:

a. QOD
b. Carrier pattern

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-13	OFT	EP-13S	EMERGENCY PROCEDURES THIRTEEN SIMULATOR	1.5

Brief:

a. QOD
b. Carrier-related emergencies
c. Short-field arrested landing

Practice:

a. Case II arrival procedures
b. Pattern
c. Start position
d. Bolter/touch-and-go technique
e. Response to waveoff and technique
f. Carrier arrestment
g. Postarrestment procedures
h. Catapult hookup
i. Catapult launch procedures
j. Suspend procedures
k. Pattern entry from catapult launch
l. Communications
m. Brake failure on deck
n. NWS failure on deck
o. Communications failure on deck
p. Launch bar malfunction
q. Catapult malfunctions--soft/accel light
r. Communications failure in pattern
s. CQ-related emergencies
t. BINGO profile
u. Short-field arrested landing
v. Adverse yaw departure in landing pattern
w. Ejection
x. Bolter with blown tire
y. Carrier arrestment with blown tire

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-14	T-45/ SOLO	CQ-27	CARRIER QUALIFICATION TWENTY-SEVEN	0.6

Brief:

a. QOD
b. Carrier procedures

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-15	T-45/ SOLO	CQ-28	CARRIER QUALIFICATION TWENTY-EIGHT	0.6

Brief:

a. QOD
b. Carrier pattern

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-16	T-45/ SOLO	CQ-29	CARRIER QUALIFICATION TWENTY-NINE	0.6

Brief:

QOD

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-17	T-45/ SOLO	CQ-30	CARRIER QUALIFICATION THIRTY	0.6

Brief:

a. QOD
b. Carrier qualification procedures

Practice:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-18	T-45/ SOLO	CQ-31X	CARRIER QUALIFICATION THIRTY-ONE CHECK	0.6

Brief:

QOD

Review:

a. Communications
b. Course rules/pattern entry procedure
c. Pattern
d. Start position
e. AOA control
f. Glideslope control
g. Power control
h. Lineup control
i. Error detection/correction
j. Response to LSO calls
k. Bolter/touch-and-go technique
l. Response to waveoff and technique

NOTE: Jacket review required.

MODULE	MEDIA	SYMBOL	DESCRIPTION	DURATION
10-21	T-45/ SOLO	CQ-32X	CARRIER QUALIFICATION THIRTY-TWO CHECK	4.2

Brief:

a. QOD
b. Carrier qualification procedures

Review:

a. Formation procedures
b. Pattern
c. Start position
d. AOA control
e. Glideslope control
f. Power control
g. Lineup control
h. Error detection/correction
i. Response to LSO calls
j. Bolter/touch-and-go technique
k. Response to waveoff and technique
l. Carrier flight deck procedures
m. Communications
n. Catapult launch procedures

NOTE: Jacket review required.

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SECTION II - APPENDIX A

SUMMARY OF TRAINING STRATEGY

1. Overall Goals. The overall goal of the T-45 Combined Flight Training curriculum is to establish a finite airmanship capacity such that graduates can readily adapt to fleet carrier-based aircraft operations. The objective is achieved through the development of tactical flying skills and judgment at a steady increase in mission task loading. On completion, the Student Naval Aviator (SNA) will have demonstrated the following airmanship skills:

a. Flight Preparation and Planning

(1) Preparation. Demonstrate understanding of aerodynamics, meteorology, flight physiology, navigation, communication, aircraft performance, and aircraft systems management.

(2) Planning

(a) Plan each flight event in terms of communication, navigation, weapons system management, flight leadership, and aircraft control requirements.

(b) Demonstrate the in-flight ability to execute the preflight plan and respond to airborne contingencies.

b. Aircraft Control

(1) Control the aircraft dual or solo, day and night, under various meteorological conditions.

(2) Maintain the T-45 within the g, angle-of-attack (AOA), and airspeed envelopes; ensure safe aircraft-to-ground and aircraft-to-aircraft separation; and control the aircraft flight vector to meet mission performance standards.

c. Mission Control

(1) Navigation. Maintain aircraft position within a desired geographical area or along a specific ground track using visual cues, aircraft-installed electronic equipment, aeronautical charts, voice communications with controlling agencies and dead reckoning techniques while complying with appropriate regulations and standard operating procedures.

(2) Communications. Communicate clearly with ground agencies and other aircraft using approved radio terminology and aircraft electronic transmitting equipment as well as light, hand, or aircraft maneuvering signals.

(3) Systems Management. Manage aircraft flight, navigation, communications, and weapons delivery systems in primary and degraded modes as required for successful mission completion.

(4) Flight Leadership. Display the potential for future designation as section/division leader by demonstrating the ability to brief a flight event, execute the mission plan as flight lead or wingman, and debrief the results in terms of mission objectives and performance standards. Demonstrate basic fundamentals of "mutual support," "teamwork," and "aircrew coordination" during multiplane events.

(5) Tactical Missions

(a) Demonstrate ability to integrate basic aircraft handling, takeoff and landing, formation, and instrument flying skills with mission support skills (1) through (4) above.

(b) Expand basic aircraft and mission control skills during execution of airways instrument navigation, carrier qualification, low-level navigation, air-to-ground weapons delivery, and air combat maneuvering exercises.

d. Situational Awareness. Demonstrate the ability to control the frequency and duration of time available for mission tasks relative to aircraft control tasks. Display the ability to remain continuously oriented within the flight's environment and to correctly analyze factors, which will affect the successful completion of the task at hand.

e. Crew Resource Management (CRM). Demonstrate the ability to employ effective CRM concepts and activities in all phases of flight training and mission tasking to permit accomplishment of training goals.

2. Overall Strategy:

a. The priority in each curriculum stage is to teach the SNA to maneuver the T-45 throughout the environment with 100 percent safety. The second priority is to integrate mission tasks and validate student ability to execute those tasks without compromising the first priority. The overall objective is to validate student capacity to maneuver the T-45 throughout its full operating envelope at mission task loadings representative of those expected in the Fleet Replacement Squadrons.

b. Curriculum learning objectives are sequenced in a building block approach such that basic aircraft control and mission task proficiency is developed in early stages, and then reinforced and expanded under the increased task loading associated with advanced stages.

c. Instrument and Operational Flight Trainer (IFT and OFT) events will follow academic and flight support events and be employed to prepare the SNA to achieve maximum training from subsequent flight instruction. Simulator training events will be structured to maximize the capabilities for part-task and whole-task versus mission training. The simulator may not be used as a substitute for flight events.

d. Computer-assisted instruction (CAI), lectures, laboratory/practical problems, electronic classroom lectures, pencil/paper lessons, and video materials will be employed to present lesson materials. CAI lessons will exploit dynamic graphic, part-task training, remediation, and testing capabilities.

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TERMINAL LEARNING OBJECTIVES

A. Aircraft Familiarization. After this stage, the student will be able to:

(1) Operate and manage primary aircraft systems in normal and emergency backup modes.

(2) Maintain the aircraft within prescribed g, angle of attack (AOA), and airspeed envelope during the performance of takeoff, landing, and general handling exercises.

(3) Integrate appropriate communication, navigation and lookout tasks.

(4) Achieve "safe for solo" qualification during day visual flight rules (VFR) conditions.

(5) Plan, brief, execute, and debrief a flight event.

B. Out-of-Control Flight. After this stage, the student will be able to:

(1) Recognize all indications of out-of-control flight.

(2) Recognize the various phases of out-of-control flight from visual and instrument references.

(3) Apply the proper recovery controls for any uncontrolled flight situation.

C. Basic Instruments. After this stage, the student will have:

(1) Developed a flight instrument scan adequate to control the aircraft without reference to a visual horizon.

(2) Demonstrated ability to communicate and navigate without jeopardizing aircraft control during basic instrument flight exercises.

D. Radio Instruments. After this stage, the student will be able to:

(1) Apply basic instrument scan to aircraft operations in the high and low altitude instrument flight rule (IFR) environments, utilizing flight instrumentation in primary and degraded modes.

(2) Demonstrate communication and instrument navigation skills prerequisite to beginning the Airways Navigation stage.

E. Airways Navigation. After this stage, the student will be able to:

(1) Plan a flight terminating away from home base utilizing the high altitude jet route structure.

(2) Prepare, file, and close out an IFR flight plan.

(3) Execute the IFR flight plan without reference to a visual horizon, using primary and degraded modes of flight instrumentation.

(4) Communicate in accordance with established procedures and terminology.

(5) After this stage, the student will have demonstrated the aircraft control, communication and instrument navigation skills during day or night, without reference to a visual horizon, utilizing primary and degraded modes of flight instrumentation and navigation equipment required to achieve a Standard Instrument Rating in accordance with OPNAVINST 3710.7 series.

F. Formation. After this stage, the student will be able to:

(1) Control the aircraft during basic multiplane formation maneuvering, section takeoff, and landing approaches, as solo in day visual meteorological conditions.

(2) Employ standard radio and visual signals.

(3) Perform air-to-air rendezvous.

(4) Integrate communication, lookout, and mutual support tasks as both wingman and leader during basic multiplane formation exercises.

G. Night Familiarization. After this stage, the student will achieve "safe for solo" qualification for takeoff, landing, and enroute navigation during night VFR conditions.

H. Operational Navigation. After this stage, the student will have demonstrated the ability to:

(1) Maneuver and DR navigate along a high-speed, low-level training route during day VMC as solo.

(2) Plan, brief, and lead a day high-low-high DR navigation route.

(3) Navigate and perform as both wingman and leader during a night section, medium altitude DR navigation exercise.

I. Air-to-Ground Weapons. After this stage, the student will be able to:

(1) Control the aircraft in the execution of 30-degree and 10-degree delivery patterns as member of a multiplane flight.

(2) Manage weapon system, communication, and mutual support.

(3) Demonstrate flight leadership tasks in a dynamic multiplane exercise while achieving prescribed weapon delivery accuracies, as solo during day VMC.

J. Tactical Formation. After this stage, the student will be able to:

(1) Control the aircraft in execution of combat spread and "loose deuce" (non-engaged) formation maneuvers as solo in day VMC.

(2) Integrate communication (voice and visual), lookout, mutual support, navigation, and leadership tasks without compromising aircraft control.

K. Night Formation. After this stage, the student will be able to:

(1) Control the aircraft during basic, section formation maneuvers, and landing approaches as solo pilot during night VMC.

(2) Perform night air-to-air rendezvous.

L. Air Combat Maneuvering. After this stage, the student will be able to:

(1) Demonstrate a basic knowledge of energy management, maneuverability, and "loose deuce" tactics.

(2) Control the aircraft throughout the majority of the operating envelope as a solo pilot.

(3) Perform 1 V 1 offensive and defensive maneuvers and 2 V 1 mutual support tactics.

(4) Demonstrate communication, mutual support, and leadership skills in dynamic air combat maneuvering exercises without degrading aircraft control and safety, as solo day VMC.

M. Field Carrier Landing Practice (FCLP)/Carrier Qualification.

After these stages, the student will be able to:

(1) Conduct solo, day/night, visual FCLP in a safe, professional manner.

(2) Conduct solo, day, and visual shipboard operations, including landings on the designated carrier, taxi on deck, and catapult, in a safe, professional manner.

ENABLING OBJECTIVES (EOs)

The enabling objectives (EOs) listed below, when completed, will satisfy the corresponding terminal learning objectives listed in the previous section.

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A. Aircraft Familiarization			
A.1 Complete all preflight preparation requirements necessary to perform strike flight and related training in the NATRACOM.	Classroom and learning center presentations, practical problems, and examinations.	Complete all examinations with 80% grade or higher and/or satisfactory completion of all lesson instruction and demonstrations.	00-02 ASI ACAD SEAT ARMS/CR ACT/ORM
A.2 Perform preflight inspection before entering cockpit checks.	Day/night, aircraft or simulator available, checklist available.	Note/analyze previous maintenance discrepancies, using preflight inspection checklist, visually inspect aircraft in accordance with (IAW) NATOPS without assistance from instructor. Preflight ejection seat and remove prescribed pins, IAW NATOPS checklist, without assistance and without error.	02 CO/BI FAM
A.3 Perform after entering cockpit checks.	Same as A.2.	Strap in, connect all leads, complete after entering cockpit checklist IAW NATOPS, without assistance and without error.	02 CO/FAM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.4 Locate and identify within the aircraft cockpit, the associated systems instruments, displays, indicators, and controls.	Aircraft or simulator available.	Locate visually and identify each item relative to each system, without assistance and without error.	02 CO/FAM
A.5 Perform the aircraft prestart inspection.	Same as A.2.	Complete prestart checklist in proper sequence, without assistance and without error.	02 FAM
A.6 Perform aircraft engine start.	Same as A.2.	Complete start procedure checklist and monitor start indications for normal indications, without assistance and without error.	02 CO/FAM
A.7 Assess aircraft engine operation during start.	Same as A.2.	Complete start procedure checklist and monitor start indications for normal/abnormal indications, IAW NATOPS limitations, without assistance and without error.	02 CO

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.8 Test A/C systems, controls, and communications and navigation system equipment for correct operation.	Same as A.2.	Initialize equipment and determine correct operation IAW NATOPS checklist procedures, without assistance and without error.	02 CO/EP
A.9 Perform the aircraft pretaxi procedures.	Same as A.2.	Complete pretaxi procedures, using checklist, in proper sequence, without assistance and without error.	02 CO/FAM
A.10 Perform communications during ground operations.	Aircraft available, local SOP available.	Conduct all communications IAW Navy regulations and instructions using standardized format without assistance and with acceptable clarity.	02 CO/FAM
A.11 Taxi aircraft.	Day/night, aircraft available, shorebased.	Perform proper ground speed, under positive control, with only minor deviation, which will not jeopardize aircraft or crew safety.	02 CO/FAM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.12 Perform the correct procedure in response to ground and in-flight emergencies.	Day/night, aircraft available, checklist available.	Respond to emergency, using correct procedures IAW NATOPS, without assistance, error, or undue delay.	02 CO/EP FAM
A.13 Perform pretakeoff procedures.	Same as A.12.	Complete pretakeoff procedures, using checklist, in proper sequence, without assistance and with only minor deviations, which will not jeopardize aircraft or crew safety.	02 CO/BI FAM
A.14 Communicate request for takeoff clearance.	Day/night, VMC/IMC, dual or solo, aircraft available, UHF/VHF radio available.	Conduct the required communication, using standardized format and correct frequency, without assistance and with acceptable clarity.	02 CO/BI FAM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.15 Perform a shorebased takeoff under normal, low visibility (ITO) and crosswind conditions.	Day/night, VMC/IMC, dual or solo, aircraft available.	Maintain runway alignment, lift-off +10/-0 KIAS of designated airspeed and maintain runway track during climb, without assistance and with only minor deviations which do not compromise flight safety.	02 FAM/BI
A.16 Perform, if an emergency situation warrants, an aborted takeoff.	Day/night, aircraft or visual simulator available.	Perform an aborted takeoff IAW NATOPS without assistance and with only minor deviations, which will not jeopardize aircraft or crew safety.	02 EP/FAM
A.17 Perform, if an emergency situation warrants, ejection from aircraft.	Aircraft and/or simulator available.	Perform ejection from aircraft IAW NATOPS procedures without assistance and without error.	02 EP/FAM
A.18 Perform after takeoff communications.	Day/night, VMC/IMC, aircraft available, UHF/VHF radio available.	Conduct all communications IAW Navy regulations/ instructions, without assistance and with acceptable clarity.	02 CO/BI FAM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.19 Assess the aircraft systems for normal/abnormal operation by interpretation of the system indicators and displays.	Aircraft available.	Analyze systems indications, determine normal/abnormal system operation by interpreting indications/ displays without error.	02 CO/EP FAM
A.20 Control the aircraft visually and by interpretation of instruments/displays to perform the following: a. Initial climb to altitude. b. Straight and level flight. c. Vertical and turning climb and descent. d. Standard rate turn (SRT). e. Half-standard rate turn (1/2 SRT). f. Steep turn (to buffet). g. Reversal. h. Minimum radius turn. i. Slow flight. j. Level speed changes. k. Unusual attitudes and recoveries. l. “S” patterns.	Day/night, VMC, dual or solo, aircraft available.	Control the aircraft by correctly interpreting cockpit displays; respond with correct control inputs without assistance and with only minor deviations which do not compromise flight safety.	02 CO/EP/BI

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.21 Perform the entry and recovery from aircraft stalls listed below. a. Power off. b. Landing configuration. c. Accelerated. d. Break turn. e. Approach turn.	Day, VMC, aircraft available.	Correctly interpret aircraft attitude and displays, recognize critical cues, input correct response to return aircraft to normal flight, without assistance and with only minor deviations which do not compromise flight safety.	02 OCF/FAM
A.22 Control the aircraft in the execution of confidence maneuvers listed below: a. Wingover. b. Barrel roll. c. Loop. d. Half Cuban eight. e. Immelmann. f. Aileron roll. g. Split "S."	Day, VMC, IMC, dual, aircraft and/or simulator available.	Correctly interpret aircraft attitudes and displays; recognize critical cues, input correct response to return aircraft to normal flight, without assistance and with only minor deviations which do not compromise flight safety.	02 FAM/BI

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.23 Monitor and assess life support systems in the aircraft and initiate appropriate action in case of malfunction.	Aircraft and/or simulator available.	Analyze/monitor systems indications, determine normal/abnormal system operation by interpreting indication/ displays without assistance and without error.	02 CO/EP FAM
A.24 Perform correct aircraft "in distress" procedures.	Aircraft available, checklist available.	Perform the procedures, including required communication IAW NATOPS checklist without assistance and without error.	02 CO/EP FAM
A.25 Execute the "Prior to Landing" communications procedures.	Day/night, VMC/IMC, dual or solo, aircraft available.	Execute the required landing communication IAW Navy regulations, without assistance and with acceptable clarity.	02/04/08 CO/BI FAM/FCLP/ CQ
A.26 Perform the landing checklist procedures.	Same as A.25.	Same as A.23.	02/04/08 CO/BI FAM/FCLP/ CQ
A.27 Use the aircraft AOA system during landing.	Day/night, VMC/IMC, aircraft available, AOA system operable.	Same as A.23.	02/04/08 FAM/FCLP/ CQ

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.28 Perform the following shorebased landings activities: a. Field entry and break. b. Landing pattern as prescribed by local course rules. c. Full flaps/ slats landing as specified in NATOPS. d. Touch-and-go landing. e. No flaps/slats landing. f. Roll/go landing. g. Cross wind landing. h. Practice precautionary emergency landing. i. Waveoff. j. Pattern reentry after touch-and-go and/or roll/go. k. Straight-in approach to landing.	Same as A.27.	Maintain a stabilized final approach with only slight variations in rate of descent, airspeed and AOA, execute a non-flared two-point touchdown within 1000 feet of the touchdown end of the runway, landing and rollout within 20 feet of centerline of runway.	02/03/04 CO/FAM NFAM FCLP
A.29 Respond to landing emergencies.	Same as A.27.	Perform the correct landing emergency procedures IAW NATOPS in correct sequence without assistance and with only minor deviations, which do not compromise flight safety.	02 CO/EP FAM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
A.30 Perform engine shutdown, secure aircraft, and perform postflight inspection.	Same as A.27.	Perform procedures IAW NATOPS checklist, without assistance and without error.	02 CO/FAM
A.31 After postflight inspection, determine and record aircraft flight status.	Using "Yellow Sheet" and appropriate Maintenance Action Form (MAF) available, NATOPS available, postflight inspection completed.	Record flight status discrepancies without assistance and without error.	02/03 FAM NFAM
B. Out-of-Control Flight			
B.1 Perform recovery from: a. OCF stall and departure. b. Vertical recovery. c. Nose low recovery. d. Nose high recovery. e. Perform optimum/high AOA maneuvers.	Day, VMC, aircraft available.	Correctly interpret aircraft attitude and displays, recognize critical cues, input correct response to return aircraft to normal flight, without assistance and with only minor deviations which do not compromise flight safety.	02/07 OCF

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
C. Basic Instruments			
C.1 Perform communications and obtain clearance for an instrument takeoff/departure.	Day/night, IMC, aircraft available, UHF/VHF radio available.	Performance to be accurate, without assistance and in compliance with the clearance.	02/03/05/ 06 BI/RI AN
C.2 Utilize SID during instrument departure.	Day/night, VMC/IMC, aircraft available, published SID.	Utilize SID correctly, without assistance only minor deviations, which do not compromise flight safety.	02/03/05/ 06 BI/RI AN
C.3 Perform “S” patterns.	Day/night, IMC, aircraft available.	Perform IAW NATOPS, FTI and NIFM without assistance and only minor deviations.	02 BI
C.4 Perform unusual attitudes and recoveries on instruments.	Same as C.3.	Same as C.3.	02 BI
C.5 Cope with degraded operation/ failure of instruments/displays during instrument flight by using alternate instruments/ displays.	Day/night, IMC, aircraft available.	Implement corrective procedures and/or alternative sources of information IAW NATOPS without assistance and without error.	02/03/05/ 06 BI/RI AN

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
C.6 Control aircraft in accomplishing partial panel flight.	Day/night, IMC, aircraft available.	Utilize alternate procedures IAW NATOPS without assistance and with only minor deviations, which do not compromise flight safety.	02/03/05/ 06 BI/RI AN
D. Radio Instruments			
D.1 Analyze observed meteorological conditions conducive to in-flight weather hazards.	Day/night, VMC/IMC, aircraft available.	Recognize weather hazards and provide alternative course to minimize danger, without assistance and without error.	02/03/05/ 06 RI/AN
D.2 Prepare and conduct all phases of radio instrument flight, including airways navigation.	Day/night VMC/IMC, dual and solo, aircraft available.	Plan all phases of instrument flight IAW NATOPS, FTI, NIFM, FLIPs with minimum error and assistance.	02/03/05/ 06 RI/AN IR

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
D.3 Operate and manage VOR to perform navigation listed: a. Tune frequencies. b. Proceeding direct to station. c. Inbound course interception. d. Inbound course. e. Outbound course interception. f. Outbound course position. g. Holding. h. High alt approach (penetration). i. Low alt approach. j. Interpret Morse Code station identifiers. k. Determine own aircraft position. l. Identify station passage.	Day/night, VMC/IMC, dual or solo aircraft available, enroute and terminal FLIP available, operable VOR.	Set up station frequency, determine required heading and aircraft position, IAW NIFM without assistance and without error.	02/03/05/ 06 BI/RI AN
D.4 Operate and manage the ILS to perform instrument approaches, including all types of localizer (LOC).	Day/night, VMC/IMC, dual/solo, aircraft available, operable ILS.	Operate the ILS IAW aircraft NATOPS without assistance and with only minor deviations, which do not compromise flight safety.	02/03/05/ 06 BI/RI AN

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
D.5 Operate and manage Tactical Air Navigation (TACAN) to perform navigation as listed: a. Select and tune station. b. Check ground speed. c. Intercept and maintain a TACAN arc. d. Intercept an arc from a radial. e. Intercept a radial from an arc. f. Point-to-point. g. Station passage. h. Holding. i. High altitude penetration. j. DP. k. Interpret coded station identifiers. l. Assess navigation system accuracy & reliability. m. Compute wind drift. n. Air-to-air rendezvous.	Day/night, VMC/IMC, dual/solo, aircraft available, enroute and terminal FLIP, operable TACAN.	Set up station channel and determine required headings, aircraft speed, patterns, without assistance and with only minor deviations which do not compromise flight safety.	02/03/05/ 06 BI/RI AN

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
D.6 Perform enroute flight procedures executing the following: a. Maintain aircraft position with onboard navigation equipment. b. Select correct IFF/SIF mode. c. Update and refile flight plan as required. d. Update fuel plan. e. Utilize in-flight weather information. f. Use navigation computer as required. g. Plan a secondary route, if hazardous weather is encountered. h. Execute enroute clearance. i. Execute enroute holding. j. Communicate with ATC as required.	Day/night, IMC, dual/solo, aircraft available, on instrument flight plan, operable communications and navigation equipment.	Performance to be IAW NIFM, without assistance, and with only minor deviations which do not compromise flight safety.	02/03/05/ 06 BI/RI AN
D.7 Perform IFR penetrations, approaches, and landings.	Day/night, IMC, dual/solo, aircraft available.	Perform IAW NIFM, without assistance and with only minor deviations, which do not compromise flight safety.	02/03/05/ 06 BI/RI AN

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
D.8 Perform instrument approaches listed below: a. Precision approach radar (PAR). b. ASR. c. No gyro GCA. d. Minimum fuel/ emergency fuel. e. Emergency oil.	Same as D.7.	Perform IAW NIFM and make required communications, without assistance and with only minor deviations which do not compromise flight safety.	02/03/05/ 06 BI/RI AN
D.9 Perform missed approach if visual contact not established at published minimums, full and partial panel.	Same as D.7.	Perform IAW NIFM, without assistance and with only minor deviations, which do not compromise flight safety.	02/03/05/ 06 BI/RI AN
D.10 Respond to emergency situations during flight in instrument conditions, including: a. NORDO. b. NAVAID failure/ malfunctions. c. Aircraft emergency/ malfunctions. d. Severe weather.	Same as D.7.	Same as D.7.	02/03/05/ 06 BI/RI AN

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
E. Airways Navigation			
E.1 Plan and prepare flight plans for VFR/IFR flights/missions by performing the following: a. Plan for enroute points and destination. b. Review and comply with standard DOD/FAA/OPNAV publications. c. Select appropriate DPs. d. Obtain and interpret weather. e. Compute flight headings, air/ground speed, fuel consumption, best altitude, enroute time and ETA based on forecast weather and winds. f. Determine alternate routes. g. Utilize navigation computer, navigation plotter and dividers for flight planning. h. Complete single-engine Jet Flight Log. i. Compute Bingo profiles. j. Prepare and file DD 175.	DOD FLIP publications NOTAMS, DP, enroute charts, weather data, navigation computer, DD 175, OPNAVINST 3710.7 and aircraft NATOPS available.	Plan and prepare flight plan IAW OPNAVINST 3710.7 without assistance and with only minor deviations, which do not compromise the completion of the mission.	02/03/05/ 06 RI/AN NFAM ONAV
E.2 Perform instrument cross-country.	Same as D.7.	Same as D.7.	03/05/06 AN

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
F. Formation			
F.1 Control the aircraft in the execution of section and division formation maneuvers listed below: a. Takeoff. b. Join-up. c. Crossunder. d. Lead change. e. Breakup and rendezvous. f. Underrun. g. Parade formation. h. Cruise formation. i. Column formation. j. Trail position. k. Carrier rendezvous. l. Recovery procedures.	Day/night, VMC, dual/solo, aircraft available.	Control the aircraft smoothly IAW the parameters designated in NATOPS, without assistance and with only minor deviations, which do not compromise flight safety.	03/06/08 FORM NFORM
F.2 Execute the correct radio communication procedures during formation flight.	Day/night, VMC, dual/solo, aircraft available.	Execute the required communications, using standard terminology and practicing radio discipline, without assistance and without error.	03/06/08 FORM NFORM
F.3 Execute the correct visual signals during formation flight.	Day/night, VMC, aircraft available.	Execute the correct visual signals IAW NATOPS without assistance and without error.	03/06/08 FORM NFORM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
F.4 Perform an air-to-air TACAN rendezvous.	Aircraft available, operable TACAN.	Perform an air-to-air rendezvous, using heading, relative position and airspeed information to effect rendezvous, IAW NATOPS, without assistance and with only minor deviations which do not compromise flight safety.	03/06/08 FORM NFORM
G./H. Night Familiarization/Operational Navigation			
G.1 Adjust to the limitations of night vision during all phases of night flight.	Night, dual/solo, aircraft available.	Adjust to the various hazards associated with night flight without assistance or compromise of flight safety.	03/04/06/ 08 NFAM NFORM FCLP/CQ
G.2/H.1 Plan and prepare flight plans for tactical navigation flights, missions listed below: a. Low-level navigation-VMC. b. Cross-country-VMC. c. Cross-country-IMC (nonairways).	Aircraft, NATOPS, FTI, NIFM, FLIPS and charts and DPs available.	Prepare flight plans IAW OPNAVINST 3710.7T, NATOPS, FTI without assistance and only minor deviations, which do not compromise flight safety.	03/05/06 NFAM ONAV

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
G.3/H.2 Navigate using visual navigation techniques during cross-country flight.	Day/night, VMC, dual/solo, aircraft available.	Navigate point-to-point to arrive at each checkpoint within ±20 seconds of ETA.	03/05/06 NFAM ONAV
G.4/H.3 Determine aircraft position by visual reference to landmarks and charts.	Day/night, VMC, dual or solo, aircraft available.	Navigate point-to-point to arrive at each checkpoint within ±20 seconds of ETA.	03/05/06 NFAM ONAV
G.5/H.4 Solve in-flight problems to retain/regain preplanned ETA.	Day/night, VMC, dual or solo, aircraft available, and given a visual position.	Solve problem for correction to airspeed, and/or heading to retain/regain estimated ETA, without assistance and with minor deviations, which will not jeopardize ETA.	03/05/06 NFAM ONAV
G.6/H.5 Use a navigation computer and appropriate charts to determine the following: a. Windspeed. b. Groundspeed. c. Drift/drift correction. d. Time-to-ground reference points.	Point-to-point fix, computer, charts available.	Use computer to determine windspeed, groundspeed, drift/drift correction, and time-to-ground reference points without assistance and with 90% accuracy.	02/03/05/06 RI/AN NFAM ONAV
H.6 Utilize in-flight weather information accurately during operational navigation missions to update flight plan.	Day/night, VMC/IMC, dual or solo, aircraft available.	Execute IAW FTI without assistance and without error.	05/06 ONAV

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
H.7 Analyze observed meteorological conditions or course deviations and determine correct action to be taken.	Same as H.6.	To optimize aircraft safety and mission requirements without assistance and without error.	05/06 ONAV
H.8 Execute operational navigation tactical missions as listed below: a. Day low-level navigation mission. b. High-low-high profile mission. c. Section reconnaissance mission.	Same as H.6.	Arrive at planned checkpoint within ETA and estimated fuel and completing mission as planned, without assistance and without error, except for minor deviations which do not jeopardize the mission.	05/06 ONAV
H.9 Solve in-flight problems for groundspeed and heading corrections during DR flight.	Same as H.6.	Regain a pre-planned ETA and course, without assistance and without error.	05/06 ONAV
H.10 Determine aircraft position by interpreting topographical charts and by reference to visual landmarks during cross-country navigation flight.	Same as H.6.	Determine position without assistance and without error.	05/06 ONAV
H.11 Navigate using DR techniques.	Same as H.6.	Same as H.8.	05/06 ONAV

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
H.12 Communicate with controlling agencies relative to: a. Position, mission or tactical information. b. Emergency situation. c. Enroute information. d. Approach and departure.	Day/night, VMC/IMC, dual or solo, aircraft available, UHF/VHF radio available.	Make required communication using standard terminology without assistance and with acceptable clarity.	05/06 ONAV
I. Air-to-Ground Weapons			
I.1 Utilize the 30-, 20-, and 10-degree attacks and patterns in air-to-ground weapon delivery, to deliver the weapon accurately on target.	Day, VMC, aircraft available.	Execute IAW NATOPS and FTI with accuracies delineated in Mod 05, without assistance and with only minor deviations which do not compromise flight safety.	05 WEP
I.2 Manage the aircraft ordnance in the execution of air-to-ground weapon delivery systems.	Same as I.1.	Same as I.1.	05 WEP
I.3 Perform tracking and firing procedures during an air-to-ground weapon delivery attack to deliver weapons on target.	Same as I.1.	Same as I.1.	05 WEP

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
I.4 Perform the correct gun firing procedures during simulated air-to-ground weapon delivery to achieve weapons delivery on target.	Same as I.1.	Same as I.1.	05 WEP
I.5 Execute air-to-ground weapon delivery patterns for accurate delivery of weapon to target.	Same as I.1.	Same as I.1.	05 WEP
I.6 Control aircraft airspeed in air-to-ground weapon delivery.	Same as I.1.	Execute smooth, coordinated adjustments in a positive manner, without assistance and without error.	05 WEP
J. Tactical Formation			
J.1 Control the aircraft in the execution of combat spread formation maneuvers listed below: a. Abeam position. b. Turns.	Day, VMC, dual or solo, aircraft available.	Maintain correct interval and position, IAW FTI, without assistance and only with minor deviations, which do not compromise flight safety.	06 TACF

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
J.2 Control the aircraft in the execution of "loose deuce" maneuvering.	Same as J.1.	Maintain positive control without exceeding aircraft limitations IAW NATOPS and FTI, without assistance and with only minor deviations, which do not compromise flight safety.	06 TACF
J.3 Apply the aerodynamics of energy maneuverability during combat tactical flight.	Same as J.1.	Same as J.2.	06/07 TACF/ACM
K. Night Formation			
K.1 Perform night formation.	Night, VMC, dual or solo, aircraft available.	Execute IAW NATOPS and FTI, with only minor deviations, which do not compromise, flight safety.	06/08 NFORM
L. Air Combat Maneuvering			
L.1 Demonstrate the capability to manage the aircraft weaponry in the execution of an air-to-air weapon delivery mission.	Day, VMC, dual or solo, aircraft available.	Perform IAW NATOPS and FTI, without assistance and with only minor deviations, which do not compromise flight safety.	07 ACM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
L.2 Perform simulated air-to-air weapon delivery to achieve weapon delivery on target.	Same as L.1.	Same as L.1.	07 ACM
L.3 Demonstrate situational awareness during air-to-air gunnery.	Same as L.1.	Same as L.1.	07 ACM
L.4 Perform Air Combat Maneuvers (ACM) listed below: a. Vertical recoveries. b. Dive recoveries. c. Vertical scissors. d. Horizontal scissors. e. Rolling scissors. f. High yo-yo. g. Low yo-yo. h. Displacement rolls. i. Barrel rolls. j. Rolling reversals. k. Horizontal reversals. l. Nose high reversals. m. Accelerated turn. n. Break turn. o. Over-and undershoot. p. Section engaged maneuvering. q. Disengage and bugout. r. High energy flight. s. Low, medium, high angle off.	Same as L.1.	Same as L.1.	07 ACM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
L.5 Perform Defensive Air Combat Maneuvers (DACM) during one-vs-one defensive maneuvering in the tactical environment, listed below: a. Rear quarter attack. Long range. Medium range. High yo-yo. Low yo-yo. Short range. b. Forward quarter attack. c. Maneuvering after an overshoot. Reversals rolling. Horizontal scissors. Horizontal rolling. d. Last ditch maneuvers and break turns. Break. High "G" rolls. Over the top. Underneath. Countering the high "G" roll. e. Maneuvering for separation and disengagement.	Same as L.1.	Same as L.1.	07 ACM
L.6 Maintain flight integrity as lead and provide mutual support for wingman.	Same as L.1.	In accordance with FTI without degrading flight safety.	07 ACM
L.7 Monitor wingman and bandit position maneuvering.	Same as L.1.	Same as L.1.	07 ACM
L.8 Monitor and transmit tactical commentary during ACM.	Same as L.1.	Same as L.1.	07 ACM

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
L.9 Determine when engagement has degenerated into a defensive situation and execute prudent escape maneuvers.	Same as L.1.	Same as L.1	07 ACM
L.10 Determine when engagement should be terminated (whether offensive or defensive).	Same as L.1.	Decision based on such factors as fuel, operation over enemy territory, and mission requirements.	07 ACM
M. Field Carrier Landing Practice (FCLP)/Carrier Qualification			
M.1 Perform Field Carrier Landing Practice (FCLP).	Day/night, VMC, solo, aircraft available, LSO available.	Perform FCLP IAW FTI, without assistance and with only minor deviations, which do not compromise flight safety.	04 FCLP
M.2 Perform the prelaunch procedures prior to carrier catapult takeoff.	Day, VMC, solo, aircraft available, carrier available.	Complete prelaunch procedures using checklist, in proper sequence, observing safety precautions, without assistance and without error.	08 CQ

OBJECTIVES	CONDITIONS	STANDARDS	EO	MOD
M.3 Perform communication with carrier during takeoff/landing.	Day, VMC, aircraft available, carrier available, UHF/VHF radios available, LSO available.	Perform communications using standardized format, correct frequency, IAW Navy regulations, without assistance and with acceptable clarity.		08 CQ
M.4 Perform catapult takeoff from carrier.	Same as M.2.	Maintain correct aircraft attitude, heading, and airspeed without assistance and without error.		08 CQ
M.5 Perform prelanding procedures in execution of carrier landing.	Same as M.2.	Complete prelanding procedures at marshal, approach and carrier pattern in proper sequence without assistance and without error.		08 CQ

OBJECTIVES	CONDITIONS	STANDARDS	EO MOD
M.6 Perform carrier approach to landing.	Day, VMC, solo, LSO available, aircraft available, carrier available.	Perform carrier approach utilizing carrier FLOLS system, LSO, flight deck markings and aircraft AOA indexer to control aircraft speed, glideslope and line-up with carrier without assistance and with only minor deviations which do not compromise flight safety.	08 CQ
M.7 Perform a carrier landing.	Same as M.6.	Align aircraft within carrier landing area, maintain stabilized final approach, with only slight variations in rate of descent, airspeed, and angle of attack, respond correctly to LSO signals, and execute touchdown to touch-and-go landing and/or arrested landing.	08 CQ

OBJECTIVES	CONDITIONS	STANDARDS	EO	MOD
M.8 Perform a waveoff or bolter, when the situation warrants during a carrier landing.	Same as M.6.	Execute waveoff or bolter reacting to LSO signals so as to not jeopardize aircraft, carrier, or crew safety.		08 CQ

MASTER MATERIALS LIST

1. Individually Issued Materials

	TITLE	IDENTIFICATION	QTY PER STUDENT	COST EACH
a.	T-45 Combined Training Curriculum	CNATRAINST 1542.159	1	$7.42
b.	Flight Training Instructions (FTI) and Academic Lesson Guides	CNATRA PAT PUB P-1204 through P-1289 as applicable	9 20	2.42 2.42
c.	DOD FLIP Publications (1) Enroute IFR Supplement U.S. (2) Enroute High Altitude Chart (H1, H2) (3) Terminal High Altitude Instrument Approach Procedures (NW, NE, SW, SE)		3 6 8	1.25 .60 1.25
d.	Single-Engine Jet Log	CNATRA-GEN 3760/1	25	.78
e.	TRAWING In-Flight Guide	Locally produced/issued		
f.	Aviation Training Jacket	CNATRA-GEN 1542/10A	1	.11
g.	Pilot Training Summary	CNATRA 1542/95	1	.005
h.	Jacket Review	CNATRA-GEN 1542/66	1	.005
i.	Military Flight Plan	DD 175	20	.005
j.	9 mm NATO Ball ammunition		150 rds	.13

2. Support Materials

	TITLE	IDENTIFICATION	QUANTITY	COST EACH
a.	T-45C NATOPS Flight Manual	NAVAIR A1-T45AC-NFM-000	255	$17.50
b.	T-45A NATOPS Flight Manual	NAVAIR A1-T45AB-NFM-000	255	$17.50
c.	T-45A/C Pocket Checklist	NAVAIR A1-T45AB-NFM-500	255	2.65
d.	T-45C NATOPS Flight Manual (performance charts)	NAVAIR A1-T45AC-NFM-300	255	2.65
e.	T-45A NATOPS Flight Manual (performance charts)	NAVAIR A1-T45AB-NFM-300	255	2.65
f.	NATOPS Instrument Flight Manual	Stock No. 0437LP9001019	50	11.50
g.	NATOPS General Operating Instruction	OPNAVINST 3710.7T	25	11.50
h.	Aeronautical Information Manual (AIM)	FAA Publication	100	12.50
i.	Flight Clothing	(Identification and quantity listed in CNATRAINST 10126.1; cost listed in NAVSUP PUB. 4100.)		
j.	Aviation Training Jacket	CNATRA-GEN 1542/10A	1	.11
k.	Pilot Training Summary	CNATRA 1542/95	1	.005
l.	Jacket Review	CNATRA-GEN 1542/66	1	.005
m.	Aviation Training Forms are generated by TIMS.			
n.	T-45 Standard Operating Procedures (SOP)	COMTRAWINGONEINST/ COMTRAWINGTWOINST 3710.7 (Locally produced/issued)	1	
o.	Lecture Guides	CNATRA PAT PUBS	18	

3. Aircraft and Major Training Devices

	TITLE	IDENTIFICATION
a.	Aircraft	T-45C/T-45A
b.	Instrument Flight Trainer (IFT) Non-visual Simulator	Device 2F137/137C
c.	Operational Flight Trainer (OFT) Visual Simulator	Device 2F138/138C/138D
d.	TIMS Curriculum Database/Electronic ATF/ Yellow Sheets/Scheduling/Data Retrieval	
e.	Academic Subsystem Electronic Classroom/ Learning Center/Authorware Course Materials	

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