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Encl: (1) AV-8B T&R MANUAL

1. Purpose. To publish standards and regulations regarding the training of AV-8B aircrew per the reference.
2. Information. Per reference (a), the Flight Leadership Standardization program has been added to this Manual. This program affects the Designation Tables and Instructor Requirements Tables on pages 10-11. The Flight Leadership Standardization Evaluator Plan of Instruction (POI) has been added to paragraph 140, starting on page 158. Flight Leadership POIs, beginning with Section Leader, are contained in paragraph 151, starting on page 162.
3. Recommendations. Recommended changes to this publication are invited, and may be submitted via the syllabus sponsor (MAWTS-1) and the appropriate chain of command to: Commanding General, Training and Education Command, Aviation Training Branch via e-mail (refer to <http://www.tecom.usmc.mil/atb/contacts.htm>) or the Defense Message System using the following plain language address: CG TECOM QUANTICO VA ATB.
4. Reserve Applicability. This Manual is applicable to the Marine Corps Total Force.
5. Certification. Reviewed and approved this date.


M. G. SPIESE
By direction

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AV-8B TRAINING AND READINESS MANUAL

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Enclosure (1)

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100. MARINE ATTACK SQUADRON (AV-8B) UNIT CORE COMPETENCY

1. Background. Marine Aviation plays a crucial role in the MAGTF's ability to conduct Maneuver Warfare. The ultimate goal of Marine Aviation is to attain the highest possible combat readiness to support Expeditionary Maneuver Warfare while at the same time preserving and conserving our Marines and equipment. Embedded within our combat readiness is the ability to rapidly, effectively, and efficiently deploy on short notice and the ability to quickly and effectively plan for crises and/or contingency operations thereby ensuring Marine Aviation remains ready for combat when and where the need arises. The AV-8B T&R Manual represents the collaborative effort of AV-8B Subject Matter Experts who designed training standards to maximize the full combat capabilities of the AV-8B and its crew. These standards, intrinsic in the core competency section, describe and define unit capabilities and requirements necessary to maintain like-squadron proficiency in core skills and combat leadership. Training events are based on specific requirements and performance standards to ensure pilots maintain a common base of training and depth of combat capabilities. Together, the T&R comprises a building block approach to ensure that trained aircrews remain ready, relevant, and fully capable of supporting the MAGTF commander.

2. VMA Mission. Support the MAGTF Commander by destroying surface targets and escorting friendly aircraft, day or night under all weather conditions during expeditionary, joint or combined operations.

3. Mission Essential Task List (METL)

- a. (UJTL TA 1.1.4) Conduct Sea and Air Deployment Operations
 - Maintain capability to deploy and operate from naval shipping, advanced bases, and expeditionary airfields.
 - Maintain the capability to conduct extended range operations employing aerial refueling.
 - Perform organizational maintenance on assigned aircraft.
- b. (UJTL TA 3.2.1) Conduct Fire Support
 - Conduct Offensive Anti-Air Warfare.
 - Conduct Offensive Air Support.
- c. (UJTL TA 3.2.2) Conduct Close Air Support
 - Conduct escort of friendly ground forces.
 - Conduct Assault Support Escort.
- d. (UJTL TA 3.2.3) Conduct Interdiction Operations
 - Conduct Armed Reconnaissance.
 - Conduct Strike Coordination and Reconnaissance (SCAR).
- e. (UJTL TA 3.2.4) Conduct Joint Suppression of Enemy Air Defenses
- f. (UJTL TA 3.2.8) Conduct Air-to-Air Operations
 - Conduct Anti-Air Warfare.
 - Conduct self escort and escort of friendly aircraft and ground forces.
- g. (UJTL TA 3.3) Coordinate Battlespace Maneuver and Integrate with Firepower
 - Conduct combined arms coordination and control operations.
 - Conduct Tactical Recovery of Aircraft and Personnel (TRAP) operations.

4. Table of Organization. Refer to Table of Organization 8860 managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength for AV-8B units. As of this publication date, AV-8B units are authorized:

Squadron
14 aircraft
24 Pilots

Detachment
6 aircraft
9 pilots

5. Core Capability. A core capable AV-8B unit is able to sustain the number of sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on 1.2 hour average sortie duration and assumes > 70 percent FMC aircraft and > 90 percent T/O pilots on hand. If unit FMC aircraft < 70 percent or T/O pilots < 90 percent, core capability will be degraded by a like percentage. A core capable unit is able to accomplish all tasks designated in the unit METL from a main base, expeditionary base, or amphibious platform.

a. Core Capable Squadron. A core capable VMA squadron is able to sustain 24 sorties.

b. Core Capable Squadron (-). A core capable squadron (-) is able to sustain 14 sorties.

c. Core Capable Detachment. A core capable detachment is able to sustain 10 sorties.

6. METL/Core Skills. AV-8B core skills directly support the METL as follows:

	FA M	AA R	LAT	AS	NS	AA	CAS	AR	SCAR	AAW	AI
a. Conduct Sea and Air Deployment Ops	X	X			X						
b. Conduct Fire Support	X		X	X	X		X	X	X		X
c. Conduct Close Air Support	X		X	X	X		X				
d. Conduct Interdiction Operations	X		X	X	X	X		X	X		X
e. Conduct Joint Suppression of Enemy Air Defenses	X		X	X	X			X	X		X
f. Conduct Air to Air Operations	X				X	X				X	
g. Coordinate Battlespace Maneuver and Integrate with Firepower	X		X	X	X		X				

	FCLP*	FCLP (N)*	CQ*	CQ (N)*
a. Conduct Sea and Air Deployment Ops	X	X	X	X
b. Conduct Fire Support				
c. Conduct Close Air Support				
d. Conduct Interdiction Operations				
e. Conduct Joint Suppression of Enemy Air Defenses				
f. Conduct Air to Air Operations				
g. Coordinate Battlespace Maneuver and Integrate with Firepower				
*Core or Core Plus Skill				

	FBO**	LAT**	ASE**	GCE**	OAS**	NTISR**	LFE**	FAC (A)**	ESC**
a. Conduct Sea and Air Deployment Ops	X								
b. Conduct Fire Support		X	X	X	X	X	X		
c. Conduct Close Air Support		X	X	X	X		X		
d. Conduct Interdiction Operations		X	X	X	X		X		
e. Conduct Joint Suppression of Enemy Air Defenses		X	X		X		X		
f. Conduct Air to Air Operations			X	X	X		X		
g. Coordinate Battlespace Maneuver and Integrate with Firepower								X	X
**Core Plus Skill									

7. AV-8B Core Model Minimum Requirements (CMMR). CMMR is measured in terms of the minimum numbers of core skill proficient crews and minimum numbers of combat leaders per paragraphs a and b below:

a. Minimum Unit CSP Requirements. As a minimum, in order to be considered core competent, a unit must possess the following numbers of pilots who are proficient in each core skill (unit CSP).

*NOTE

For a detachment, FCLP, FCLP(N), CQ, and CQ(N) are core skills. For the squadron and squadron (-) FCLP, FCLP(N), CQ, and CQ(N) are core plus skills. Proficiency in core plus skills is not required to obtain unit CSP.

**NOTE

FBO, 400-level LAT, ASE, GCE, OAS, NTISR, LFE, FAC(A), and ESC are core plus skills. Proficiency in core plus skills is not required to obtain unit CSP.

Training to core plus skills is at the discretion of the commanding officer. Core plus skill training may support unique training opportunities or contingency operations.

CORE/CORE PLUS SKILL	AV-8B Unit CSP Requirements		
	SQDN Pilots	SQDN(-) Pilots	DETACHMENT Pilots
FAM	16	10	7
AAR	16	10	7
LAT	15	12	7
AS	15	12	7
NS	15	12	7
AA	10	6	7
CAS	15	12	7
AR	15	12	7
SCAR	15	12	7
AAW	10	6	7
AI	14	10	7
FCLP	NA	NA	7
FCLP(N)	NA	NA	5
CQ	NA	NA	7
CQ(N)	NA	NA	5
*FCLP	16	10	NA
*FCLP(N)	8	5	NA
*CQ	16	10	NA
*CQ(N)	8	5	NA
**FBO	16	10	7
**LAT	4	2	2
**ASE	14	10	7
**SCE	14	10	7
**QAS	4	2	2
**NLER	14	10	7
**LFE	14	10	7
**FAC(A)	4	2	2
**ESC	11	6	5

A standard AV-8B crew consists of 1 pilot. In order to be considered proficient in a core skill (individual CSP), a pilot must attain and maintain proficiency in core skill events, as delineated in paragraphs (1) and (2) below.

(1) Events Required to Attain Individual CSP. To initially attain CSP in a core skill, a pilot must simultaneously have a proficient status in all of the Core (200-300) T&R events listed in the table below for that core skill:

Individual CSP Attain Table								
Pilot	FAM	AAR	LAT	AS	NS	AA	CAS	AR
T&R event requirements to attain CSP	S200 S201R 202R	210R 211R	S220 S221R 222 223	S230R S231 S232R S233R S234 235R 236 237 238R 239 240 241 242 243R 244R	S250 S251R 252R 253 254 255R	S260R 261 262 263 264R S265 S266 S267 S268 S269 S270 271R 272 273 274R	S300R S301 S302 303R 304 305R 306R 307	S310 311 312R 313R
R = Refresher POI event S = Event conducted in simulator								

Individual CSP Attain Table							
Pilot	SCAR	AAW	AI	FCLP (D)	FCLP (N)	CQ (D)	CQ (N)
T&R event requirements to attain CSP	320 321R	S330R S331 332R	S350 351R 352 353R	S400R 401R	S402R 403R S404R 405R	S410R 411R	S412R 413R S414R 415R
R = Refresher POI event S = Event conducted in simulator							

(2) Events Required to Maintain Individual CSP. To maintain CSP in a core skill, a pilot must maintain proficiency in all of the Core (200-300) T&R events listed in the table below for that core skill.

Individual CSP Maintain Table								
Pilot	FAM	AAR	LAT	AS	NS	AA	CAS	AR
T&R event requirements to maintain CSP	S201R 202R	211R	S221R	235R 238R 243R 244R	252R	264R 271R 274R	303R 305R 306R	313R
R = Refresher POI event S = Event conducted in simulator								

Individual CSP Maintain Table							
Pilot	SCAR	AAW	AI	FCLP (D)	FCLP (N)	CQ (D)	CQ (N)
T&R event requirements to maintain CSP	321R	332R	353R	401R	405R	411R	415R
R = Refresher POI event S = Event conducted in simulator							

(3) Events Required to Attain Individual Proficiency in Core Plus Skills. Proficiency in Core Plus Skills is not required to obtain unit CSP. Training to Core Plus Skills is at the discretion of the unit commanding officer. To initially attain proficiency in a Core Plus Skill, a pilot must simultaneously have a 'proficient' status in all of the T&R events listed in the table below for that Core Plus Skill:

Individual Core Plus Skills Attain Table						
Pilot	FCLP (D)	FCLP (N)	CQ (D)	CQ (N)	FBO	LAT
T&R event requirements to attain Core Plus Skill proficiency	S400R 401R	S402R 403R S404R 405R	S410R 411R	S412R 413R S414R 415R	S420R 421R S422R 423R	430 431R S432 S433R 434 435R 436 437R
R = Refresher POI event S = Event conducted in simulator						

Individual Core Plus Skills Attain Table							
Pilot	ASE	GCE	OAS	NTISR	LFE	FAC (A)	FAC (A) ESCORT
T&R event requirements to attain Core Plus Skill proficiency	440R	441R	450R 451R	460R	470 471R	S480 S481 482 483R 484 485 486 487R 488R 489R 490R 491 492 493 494	495R
R = Refresher POI event S = Event conducted in simulator							

(4) Events Required to Maintain Individual Proficiency in Core Plus Skills. To maintain proficiency in a core plus skill, a pilot must maintain proficiency in all of the T&R events listed in the table below for that core plus skill.

Individual Core Plus Skills Maintain Table						
Pilot	FCLP (D)	FCLP (N)	CQ (D)	CQ (N)	FBO	LAT
T&R event requirements to maintain Core Plus Skill proficiency	401R	405R	411R	415R	423R	435R 437R
R = Refresher POI event S = Event conducted in simulator						

Individual Core Plus Skills Maintain Table							
Pilot	ASE	GCE	OAS	NTISR	LFE	FAC (A)	FAC (A) ESCORT
T&R event requirements to maintain Core Plus Skill proficiency	440R	441R	450R 451R	460R	471R	483R 487R 488R 489R 490R	495R
R = Refresher POI event S = Event conducted in simulator							

b. Minimum Combat Leader Requirements. At a minimum, in order to be considered Core Competent, a squadron must possess the following numbers of pilots with listed flight leadership designations.

DESIGNATION	SQDN	SQDN (-)	DETACHMENT	Remarks
SECTION LEAD	11	6	5	INCLUDES DIVISION LEAD
DIVISION LEAD	6	3	3	INCLUDES MISSION CMDR
MISSION CMDR	3	2	1	INCLUDES WTI

8. Qualifications And Designations Tables. The tables below delineate T&R events required to be completed to attain initial qualifications, re-qualifications, and designations. All stage lectures, briefs, squadron training and prerequisites shall be complete prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in the NATOPS and APR jackets. Loss of proficiency in all qualification events causes the associated qualification to be lost. Regaining a qualification requires completing all R coded syllabus events associated with that qualification.

<u>Qualification</u> (TRACKING CODE)	<u>Initial Event Qualification Requirements</u>
NATOPS (600)	IAW OPNAV 3710.7 and an annual qualification letter signed by the commanding officer.
INST (601)	IAW OPNAV 3710.7 and an annual qualification letter signed by the commanding officer.
AAR (610)	210, 211, and IAW Air Refueling NATOPS
LAT QUAL (611)	S220, S221R, 222, 223
NSQ HI (612)	S250, S251, 252, 253, 254, 255
ACM QUAL (613)	S260, 261, 262, 263, 264, S265, S266, S267, S268, S269, S270, 271, 272, 273, 274
CQ(D)QUAL (614)	S410, 411
CQ(N)QUAL (615)	S412, 413, S414, 415
NSQ Low (616)	S432, S433, 434, 435, 436, 437
FAC(A) QUAL (617)	S480, S481, 482, 483, 484, 485, 486, 487, 488, 489, 490
AIRSHOW DEMO (618)	Syllabus IAW MAG SOP

<u>Designation</u> (TRACKING CODE)	<u>Designation Requirements</u>
SECTION LEAD (603)	S620, S621, 622, 623, 624, 625, 626, 627
DIVISION LEAD (604)	630, 631, 632, 633
MISSION CMDR (605)	636, 637
PMCF (641)	S640, 641 and IAW OPNAVINST 4790 and an annual designation letter signed by the commanding officer.
FLSE	Per AV-8 Flight Leadership Program Model Manager requirements.
WTO (505)	IAW the MAWTS-1 Course Catalog.
LATI (513)	
NSI (523)	
NS LATI (526)	
ACTI (533)	
FAC(A) I (543)	

9. Instructor Requirements. A unit should possess the following numbers of pilots with the listed instructor designations IAW MCO 3500.12C (WTFP).
Note: Squadron CO/XO instructor designations shall not count toward the following numbers:

INSTRUCTOR DESIGNATION	SQDN	SQDN (-)	DETACHMENT	REMARKS
LSO	5	2	3	INCLUDES T, A&B LSO
LSS	2	1	1	MAIN BASE
WTO	3	2	1	INCLUDES WTI
LATI	3	2	1	INCLUDES WTI
NSI	3	2	1	INCLUDES WTI
NS LATI	2	1	1	INCLUDES WTI
ACTI	2	1	1	INCLUDES WTI
FAC(A) I	1	1	0	FAC(A) I
WTI	1	1	0	FILLING A PTO BILLET
FLSE	2	2	0	MAG DESIGNATION

10. Training Progression Model. Per Chapter 2 of the T&R Program Manual, the AV-8B Pilot Training Progression Model is depicted as follows:

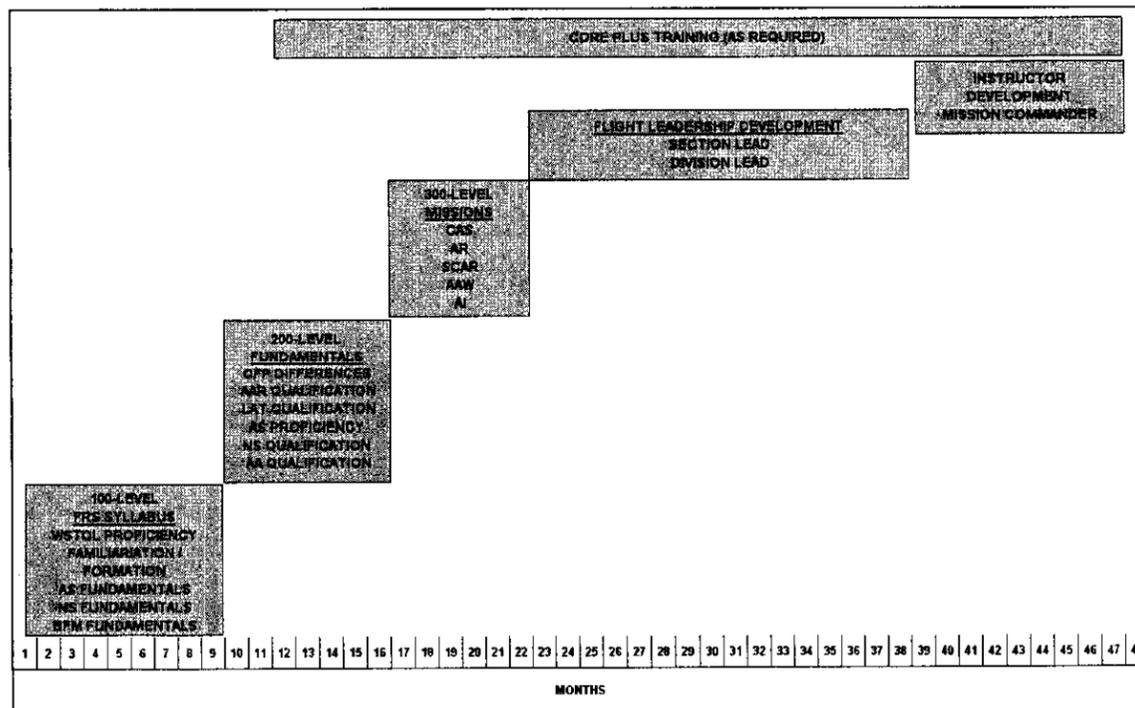


Figure 1.--AV-8B Pilot Training Progression Model.

101. PROGRAMS OF INSTRUCTION (POI) FOR BASIC, CONVERSION, AND TRANSITION PILOT. Note that Conversion and Transition pilots fly the entire Basic POI.

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-4	Transit and Pre-load	Training Squadron
5-40	Core Skill Introduction Training	Training Squadron
41-80	Core Skill Basic Training	Tactical Squadron
81-112	Core Skill Advanced Training	Tactical Squadron
113-160	Core Plus Training	Tactical Squadron

102. POI FOR REFRESHER PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-8	Core Skill Introduction Training	Training Squadron
9-23	Core Skill Basic Training	Tactical Squadron
24-34	Core Skill Advanced Training	Tactical Squadron
35-52	Core Plus Training	Tactical Squadron

103. POI FOR MODIFIED REFRESHER PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-3	Core Skill Introduction Training	Training Squadron
*	Core Skill Basic Training	Tactical Squadron
*	Core Skill Advanced Training	Tactical Squadron
*	Core Plus Training	Tactical Squadron

* = Modified Refresher stages are based upon the full Refresher syllabus modified at the discretion of the squadron commanding officer.

104. POI FOR FRS INSTRUCTOR PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-5	T/AV-8B Instructor Pilot (IP)	Training Squadron

105. SQUADRON LEVEL TRAINING. Ground training requirements are listed separately for each phase of flight training. Training may be completed earlier in stage but should be completed by the appropriate sortie(s).

130. EVENT PERFORMANCE REQUIREMENTS

1. General

a. The MAWTS-1 Academic Support details all Ground, Academic, Simulator, and Flight requirements for each stage of the T+R. This matrix will be put in the APR of all pilots to thoroughly track training progression. As each training event is completed, the PTO will input the date of completion.

b. All events, to include simulators, shall begin with a comprehensive brief emphasizing: administrative procedures, CRM, tactical procedures, and mission performance standards. All events shall terminate with a comprehensive debrief emphasizing pilot performance utilizing all evaluation techniques available (e.g., TACTS, tapes, participating aircrews, and AIC personnel).

c. An ATF is required for any initial event completed by a Basic, Transition, Conversion of Refresher pilot, or as recommended by the squadron

Standardization Board. Standardized ATFs can be obtained by the T&R sponsor, MAWTS-1.

d. The T&R manual is the Marine Corps pilot training document. It details the training requirements and standards for Marine pilots. When operational commanders assign AV-8B squadrons to prolonged commitments where specific T&R training is not available (e.g., MEU deployments), it is expected that degradation in some mission areas will occur. Commanding officers are authorized and encouraged to employ the AV-8B in specific missions relating to their current situation and avoid those mission areas not relevant to their situation. It is not intended for squadrons to train to specific mission areas and avoid mission areas that the AV-8B is very capable of conducting, but are difficult to coordinate. This type of mission specific training is granted only to squadron commanding officers deployed in austere conditions that prevent them from executing the T&R manual.

2. T&R Phases

a. The 200-level phase is considered to be 'skill' level training. Completion of the 200-level phase shall provide the AV-8B pilot with the skills required to execute AV-8B missions that directly support the unit METL.

b. The 300-level phase is considered to be 'mission' level training. Completion of the 300-level phase ensures the AV-8B pilot is trained to execute missions that support the unit METL.

c. The 200 and 300-level phases are considered core skills.

d. The 400-level phase is considered "Core Plus" training. This phase contains AV-8 training standards applicable to large scale integrated missions, unique mission areas, or mission areas having a low probability of execution. This phase also trains pilots to be capable of leading/directing flights of numerous aircraft in a complex wartime scenario. Although core plus training events may provide valuable training opportunities, they are not measured as part of the unit reporting.

e. The 500-level phase contains instructor workup and certification syllabus events.

f. The 600-level phase contains requirements, qualifications and designations syllabus events.

3. T&R Codes

a. In order to log a T&R code, pilots must complete all event requirements satisfactorily achieving Mission Performance Standards. Logging multiple training codes on a single sortie shall be avoided except for the following mission areas: CAS, AR, SCAR, AI. Here, pilots shall log the mission code, applicable tactic utilized (AS codes) and code for ordnance employed. When scheduling sorties, training officers are allowed to schedule additional training codes based on anticipated ordnance delivery profiles if the Performance Standards are met for the ordnance delivered. For example, a pilot is scheduled for CAS-305 with 2 GBU-12s and a TPOD. A pilot may log AS-241, AS-243, TRK-651, and TRK-664. Even though all requirements for sortie completion may not be met for those 2 codes, the pilot may log the additional codes, as long as the Performance Standards are met (i.e. valid delivery, within required CEP, etc).

b. Additionally, it is appropriate to log 3 separate training codes if, during the conduct of a sortie, the flight completes all of the specific event requirements for a syllabus event, conducts air-to-air refueling and completes all AAR requirements, then completes a third syllabus event prior to landing. If multiple syllabus events are to be accomplished during a single flight evolution, appropriate planning, briefing, and debriefing time must be allotted to ensure that requisite training objectives can be met.

c. In the event that ordnance or dissimilar adversary requirements are not available, or the available training range does not fully support the syllabus event, the following 600-Level tracking codes shall be logged in addition to the syllabus event code:

- (1) TRK-668: Required range requirement unavailable.
- (2) TRK-669: Ordnance requirement unavailable.
- (3) TRK-670: Syllabus support unavailable.

4. Number of aircraft required. Some of the syllabus events in the T&R have 1+ or 2+ aircraft required. 1+ aircraft required implies that the flight may be flown as a single ship or greater. 2+ aircraft required implies that the flight may be flown as a section or greater.

5. Sortie Requirements. Sortie requirements state the minimum number of passes, engagements, or maneuvers required for completion. Sorties that do not complete all stated requirements in 1 sortie, may complete the requirements of an event in multiple sorties as long as the completion sorties are flown in succession and within normal currency windows defined the T&R. If a pilot's currency expires or the event requirements cannot be completed on the next scheduled sortie, then the event shall be re-flown in its entirety.

6. Performance Standards. Performance standards are listed for each T&R event description. These are training standards for individual pilot performance and should be utilized as a guideline to determine the satisfactory completion of each event. If the pilot did not satisfactorily attain the performance standards, the training code shall not be logged as a completed flight. Instead, the applicable incomplete tracking code (TRK 671 through TRK 692) shall be logged.

a. All simulators and flight events shall be planned, briefed, executed and debriefed IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B, OPNAVINST 3710, doctrinal publications, the AV-8B TACSOP, and applicable SOPs.

b. An Aircrew Training Form (ATF) shall be completed for all basic or refresher syllabus; flight leadership work-up events; and instructor work-up events.

c. All pilots shall have a APR. The squadron PTO shall ensure each ATF is entered in section 3 of the APR.

d. Performance Standards are listed for each simulator and flight event. If the Performance Standards are achieved, then the applicable T+R code can be logged.

7. Ordnance. In the Core Skill Introduction phase, specific ordnance requirements are delineated for each event. In the Core Skill Basic through Core Plus Phase, this is done for simulator events and in those cases where a

particular sortie's objectives could not be met without a specific ordnance load. In the remaining cases, individual events in this Manual specify ordnance requirements by general category of ordnance to be employed:

- a. Gun.
- b. Free fall.
- c. Illumination.
- d. Rockets.
- e. Precision Guided Munitions (PGM).
- f. Expendables.
- g. Air Intercept Missiles (AIM).

This approach is designed to give commanders maximum flexibility when attempting to balance training effectiveness with logistical and operational constraints (i.e., NCEA, component availability, range restrictions, weather, etc.). With the category of ordnance, there exists wide latitude with regard to the use of: simulation modes, captive carry, practice, inert and heavy explosive ordnance. Paragraph 160 contains further information on the number and types of ordnance required to ensure adequate total training exposure for each pilot and squadron.

For Initial and Refresher POI, the ordnance loadout specified in the sortie description is required to complete the event. When the loadout specified is generic (i.e. free fall munitions), any NATIP authorized loadout is acceptable.

8. Range Requirements

- a. Each sortie description lists a series of range capabilities required to complete the sortie and accurately assess mission performance standards.
- b. Paragraph 170 details each range capability and abbreviation.

9. Aviation Training Rules of Conduct. Pilots shall adhere to Aviation Training Rules of Conduct for Low Altitude, Night Systems (NS), Air Combat Maneuvering (ACM), and Forward Air Control (Airborne) training operations in accordance with NAVMC 3500.14 (Aviation Training and Readiness Program Manual). Pilots conducting NS LAT training (other than NSQ Low training under the supervision of an NSLATI) shall be NS Low qualified.

131. CORE SKILL INTRODUCTION PHASE

1. Core Skill Introduction Training

- a. Purpose. Transition pilots to the AV-8B Harrier II+. Introduce all procedures, skills, and weapons requisite for AV-8B NATOPS qualification.
- b. General

(1) Satisfactory performance metrics for Core Skill Introduction syllabus events are determined and maintained by VMAT-203. These performance standards are based on applicable publications (e.g. AV-8B NATOPS Manual, OPNAVINST 3710, etc.), but are tailored to fit adequate pilot performance that is commensurate with an acceptable level of progression. Additional

performance standards are specified, when applicable, for each stage of training.

(2) Passing grade on written examinations is 80%.

(3) All training shall be conducted IAW applicable portions of OPNAVINST 3710 and NAVMC DIR 3500.14, Aviation Training and Readiness Program Manual

2. Familiarization (FAM)

a. Purpose. Introduce systems management, normal and emergency procedures.

b. General

(1) An early stage FAM instructor is required for events up to, and including, FAM-019.

(2) A late stage FAM instructor is required for events after FAM-019.

(3) A FRS Landing Site Instructor (LSI) shall supervise all solos.

c. Ground/Academic Training

(1) Readings

(a) AV-8B NATOPS Manual (A1-AV8BB-NFM-000)

1. Chapter 1, Aircraft and Engine
2. Chapter 2, Systems
3. Chapter 4, Operating Limitations
4. Chapter 7, Shore-Based Procedures
5. Chapter 11, Flight Characteristics
6. Chapter 12, General Emergencies
7. Chapter 13, Ground Emergencies
8. Chapter 14, Takeoff Emergencies
9. Chapter 15, In-Flight Emergencies
10. Chapter 16, Landing Emergencies
11. Chapter 17, Emergency Egress
12. Chapter 18, Immediate Action Items
13. Chapter 20, Instrument Procedures
14. Chapter 22, Communications

15. Chapter 23, Navigation
16. Chapter 24, Identification
17. Chapter 25, Data Storage Set
18. Chapter 26, V/STOL-REST Displays
19. Chapter 27, Digital Video Mapping Set
20. Chapter 28, Video Recording System
21. Chapter 29, Forward Looking Infrared Navigation System

(b) Air NTP 3-22.1-AV8B

1. Section 3.1 AV-8B TACSOP
2. Section 3.2 Ground Operations
3. Section 3.3 Flight Operations
4. Section 3.8 Communications
5. Section 3.12 Debriefing

(c) AV-8B TACSOP. General Standards.

(d) V/STOL Pilot's Book of Corporate Knowledge

(e) MPCD Workbook

(f) Aircraft Configuration Guide

(2) Lectures

(a) Familiarization Stage Brief

(b) Instrument Ground School

(c) Receive the following AV-8B Courseware lectures:

1. AV-8B Engine
2. Electrical and Lighting Systems
3. Fuel System
4. Hydraulic Power and Landing Systems
5. Flight Control Systems
6. Environmental Control Systems
7. Standby Flight Instruments

8. Mission Computer
9. OSCAR Mission Systems Computer (MSC)
10. Up Front Control Set
11. Communication / Identifications Equipment
12. Heads Up Display
13. INS Theory
14. GPS Theory
15. Navigation Systems, Part 1
16. Navigation Systems, Part 2
17. Navigation Systems, Part 3
18. Navigation Systems, Part 4
19. Emergency Equipment
20. Ejection Seat
21. Survival Equipment
22. Operating Limits
23. Video Recording System
24. Introduction to the RADAR
25. Aerodynamics
26. AV-8B / TAV-8B Differences
27. OSCAR Changes to the TAV-8B
28. AV-8B Engine Handling and Performance
29. AV-8B Preflight
30. Normal Procedures, Part 1
31. Normal Procedures, Part 2
32. Normal Procedures, Part 3
33. Normal Procedures, Part 4
34. Normal Procedures, Part 5
35. Normal Procedures, Part 6

- 36. Normal Procedures, Part 7
- 37. Ground Emergencies
- 38. Takeoff Emergencies
- 39. In Flight Emergencies, Part 1
- 40. In Flight Emergencies, Part 2
- 41. Landing Emergencies
- 42. Briefing/Debriefing
- 43. Instrument Procedures
- 44. Aircraft Service and Handling
- 45. AV-8B Flight Preparation

(3) Chalk Talks/Practical Application

- (a) Engine and Fuel Systems Trainer
- (b) Airframe Systems Trainer
- (c) Seat Brief, Survival Equipment, Parachute Hang
- (d) JMPS: Introduction to Joint Mission Planning System
- (e) JMPS: Introduction to the AV-8B Unique Planning Component
- (f) JMPS: Basic Mission Planning

(4) Exams

- (a) Engine quiz
- (b) Electrical, Fuel, and Hydraulic Systems quiz
- (c) Flight Controls, Environmental Systems, and Standby Flight Instruments quiz
- (d) Aerodynamics quiz
- (e) FAM Ground School exam

d. Flight and Simulator Event Training. (29 Events, 48 Hours).

SFAM-001

2.0

RNWST S

Goal. Introduce the AV-8B cockpit and after entering cockpit, pre-start, starting engine, and before taxi checks. Introduce MPCD emphasizing DVMS modes, UFC and ODU, communication systems, and HUD emphasizing V/STOL and navigation master modes symbology.

Requirement. Perform a cockpit orientation, DSU and VRS installation, after entering cockpit, pre-start, and starting engine checks. Perform INS ground alignment, RADAR power up, before taxiing and after landing checks. Conduct postflight aircraft data retrieval and DSU removal procedures.

Performance Standard

PUI shall be familiar with all aircraft system functionality and checklist procedures.

Prerequisite. Complete FAM stage Ground/Academic training.

SFAM-002

2.0 RNWST S

Goal. Introduce takeoff, in-flight, and landing checks and maneuvers. Practice normal cockpit check procedures.

Requirement. Perform blindfold cockpit check, data transfer, engine data entry, ANTISKID, brake, NWS, and pre-positioning checks. Perform takeoff checklist, 1 finger, 2/5 finger checks, CTO, and after takeoff checks. Perform climb technique, handling drills, and approach to stall (clean, dirty), VFR straight-in, landing checklist, 2 STOL flap FNSL, PNB, VRST STO display, STOL flap STO, and 2 auto flap VNSL.

Performance Standard

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-001.

SFAM-003

2.0 RNWST S

Goal. Introduce takeoff/in-flight/landing checks and maneuvers, PAR, and emergency procedures. Practice normal cockpit check procedures.

Requirement. Perform CWAIVER checks, PAR, waveoff, 2 STOL flap VNSL, 2 roll-and-go landings, VRST VL display, 2 and press-ups. Perform emergency procedures: emergency shutdown, abnormal start, and engine fire (fire warning light). Review CTO, STOL flap STO, 2 STOL flap FNSL, and 2 auto flap VNSL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-002.

SFAM-004

2.0 RNWST/WST S

Goal. Introduce takeoff/in-flight/landing checks and maneuvers, emergency procedures, and TACAN approach.

Requirement. Perform TACAN approach, 3 CL to full stop, 2 CL to touch-and-go landing, 1 CL to roll-and-go landing. Perform emergency procedures: ground fire, loss of engine control, and oil system failure (oil caution light). Review STOL flap STO, 2 auto flap VNSL and 2 press-ups.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-003.

SFAM-005

2.0 RNWST/WST S

Goal. Introduce takeoff/in-flight/landing checks, maneuvers, and emergency procedures.

Requirement. Perform VFR overhead, 2 continuous VTO-accel, 3 RVL, 2 decel-VL, and box pattern. Perform emergency procedures: brake failure, abort, no liftoff on STO, main generator failure (GEN, DC, and STBY TR Caution LTS), and cruise flaps landing. Review STOL flap STO, 1 CL to roll-and-go landing, 1 STOL flap VNSL and 1 press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-004.

SFAM-006

2.0 RNWST/WST S

Goal. Introduce takeoff/in-flight/landing checks, maneuvers, and emergency procedures.

Requirement. Perform 2 RVTO, crosswind decel-VL, 1 Hover Stop Slow Landing (HSSL), and 2 SAAHS-off decel-VL. Perform emergency procedures: over rotation on STO, standby TRU failure (STBY TR Caution Light), air start, and SAS failure. Review STOL flap STO, continuous VTO-accel, 1 STOL flap FNSL, 1 CL to roll-and-go landing, 2 RVL, and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-005.

SFAM-007

2.0 RNWST/WST S

Goal. Introduce takeoff/in-flight/landing checks, maneuvers, and emergency procedures.

Requirement. Perform 2 pedal turns and 2 non-continuous VTO. Perform emergency procedures: landing gear fails to retract, APU generator failure (APU GEN Caution Light), flap channel failure (flaps 1 or 2 caution), flap failure (flap warning light), and nose wheel steering caster failure. Review CTO, STOL flap STO, 2 STOL flap FNSL, 2 RVL, 2 crosswind decel-VL and press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-006.

SFAM-008 2.0 RNWST/WST S

Goal. Introduce emergency procedures. Practice takeoff/in-flight/landing checks and maneuvers.

Requirement. Perform 2 braking-stop decel-VL, 2 SAAHS-off RVL. Perform emergency procedures: uncommanded roll on VTO, uncommanded flap motion, uncommanded nose down pitch movement, landing gear fails to extend, and reaction control failure. Review STOL flap STO, 1 non-continuous VTO-accel, 1 STOL flap FNSL, 1 auto flap VNSL, 1 HSSL, 2 RVL, 1 SAAHS-off decel-VL, and press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-007.

SFAM-009 2.0 RNWST/WST S

Goal. Introduce emergency procedures. Practice takeoff/in-flight/landing checks and maneuvers.

Requirement. Perform emergency procedures: flight control malfunction and HYD 1 failure (HYD 1 caution light). Review CTO, STOL flap STO, 1 auto flap VNSL, touch-and-go landing, 1 STOL flap VNSL, 1 SAAHS-off RVL, 1 crosswind decel-VL, 2 continuous VTO-accel, 2 braking-stop decel-VL, 2 SAAHS-off decel-VL, and press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-008.

SFAM-010 2.0 RNWST/WST S

Goal. Introduce emergency procedures. Practice takeoff/in-flight/landing checks and maneuvers.

Requirement. Perform emergency procedures: single DECS failure (EFC Caution Light); dual DECS failure (JPTL warning light) or loss of engine control; engine mechanical failure engine vibration; and IGV failure. Review STOL flap STO, PAR, 2 CL, 2 STOL flap VNSL, 1 RVL, 2 continuous VTO-accel, 2 crosswind decel-VL, 2 SAAHS-off decel-VL, and press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-009.

SFAM-011 2.0 RNWST/WST S

Goal. Introduce emergency procedures. Practice takeoff/in-flight/landing checks and maneuvers.

Requirement. Perform emergency procedures: RPM fluctuation; compressor stall; fuel transfer failure (L trans / R trans caution light); and fuel low level (L fuel / R fuel caution light(s) flashing). Review CTO, TACAN approach, 1 STOL flap FNSL, STOL flap STO, 1 CL, 1 auto flap VNSL, 1 STOL flap VNSL, 1 RVL, RVTO, 1 crosswind decel-VL, 2 continuous VTO-accel, 1 braking-stop decel-VL, 1 SAAHS-off decel-VL, and press-up (pedal turn, box pattern).

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-010.

SFAM-012

2.0 RNWST S

Goal. Introduce emergency procedures and progress check.

Requirement. Perform emergency procedures: total electrical failure (GEN, APU GEN, DC, STBY TRU); NORDO; low altitude flameout; midair; and bird strike. Review CTO, PAR, 1 STOL flap FNSL, STOL flap STO, 1 CL, 1 auto flap VNSL, 1 STOL flap VNSL, 1 RVL, RVTO, 1 crosswind decel-VL, non-continuous VTO-accel, 1 braking-stop decel-VL, 1 SAAHS-off decel-VL, and press-up (pedal turn, box pattern).

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-011.

FAM-013

1.3 1 TAV-8B A

Goal. Introduce CTO, STOL flap STO, handling drills, and STOL flap FNSL, and auto flap VNSL.

Requirement. Perform ejection seat preflight, intercom system, and visual signals. Perform CTO, STOL flap STO, handling drills, approach to stall, clean dirty, VFR overhead, 2 STOL flap FNSL, and 2 auto flap VNSL. Conduct hot refueling, hot brake/de-arming inspection.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-012.

FAM-014

1.3 1 TAV-8B A

Goal. Introduce TACAN approach, roll-and-go landings, STOL flap VNSL, and press-up. Practice takeoff/in-flight/landing checks and maneuvers.

Requirement. Perform TACAN approach, waveoff, roll-and-go landing, 2 STOL flap VNSL, and 2 press-ups. Review CTO, STOL flap STO, handling drills, 2 STOL flap FNSL, and 2 auto flap VNSL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-013.

Range Requirements. MOA, RSTD.

FAM-015 1.3 1 TAV-8B A

Goal. Introduce PAR, CL, touch-and-go landings. Practice takeoff/in-flight/landing checks and maneuvers.

Requirement. Perform PAR, 4 CL, and touch-and-go landings. Review STOL flap STO, 2 STOL flap FNSL, roll-and-go landing, and 2 press-ups.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-014.

Range Requirements. MOA, RSTD.

FAM-016 1.3 1 TAV-8B A

Goal. Introduce RVL, VTO-accel, decel-VL, and box pattern. Practice takeoff/in-flight/landing checks and maneuvers.

Requirement. Perform 2 RVL, continuous VTO-accel, 1 decel-VL, and box pattern. Review STOL flap STO, PAR, TACAN, 1 press-up, 2 CL, 1 STOL flap VNSL, and roll-and-go landing.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-015.

FAM-017 1.3 1 TAV-8B A

Goal. Introduce RVTO and HSSL. Review takeoff/in-flight/landing checks, and procedures.

Requirement. Perform RVTO, HSSL, and cruise flap 1 decel-VL. Review STOL flap STO, 2 PAR, 2 RVL, 1 STOL flap FNSL, roll-and-go landing, 2 CL, continuous VTO-accel, 2 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-016.

FAM-018 1.3 1 TAV-8B A

Goal. Introduce pedal turn. Practice takeoff/in-flight/landing checks and procedures.

Requirement. Perform pedal turn and 1 crosswind decel-VL. Review CTO, STOL flap STO, PAR, VFR overhead, 1 STOL flap FNSL, 2 RVL, continuous VTO-accel, 2 decel-VL, and 2 press-ups.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-017.

FAM-019

1.3 1 TAV-8B A

Goal. Introduce SAAHS-off RVL. Practice touch-and-go landing, takeoff/in-flight/landing checks and procedures.

Requirement. Perform SAAHS-off RVL. Review touch-and-go landing, PAR, STOL flap STO, 1 STOL flap FNSL, 2 auto flap VNSL, 2 RVL, non-continuous VTO-accel, 1 crosswind decel-VL, and 1 press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-018.

SFAM-020

1.5 RNWST/WST S

Goal. Introduce instrument flight planning, instrument flight procedures, partial panel instrument procedures, unusual attitude flight, and approaches. Practice takeoff/in-flight/landing checks and procedures.

Requirement. Perform instrument flight planning, instrument climb profile, intermediate level-off procedures, maximum range cruise profile, partial panel instrument flight, unusual attitude flight, holding procedures, IFR penetration procedures, Tactical Air Navigation (TACAN) approach, missed approach procedures, and Ground Controlled Approach PAR. Review 1 STOL flap FNSL and 1 RVL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS and OPNAVINST 3710.

Prerequisite. FAM-019.

SFAM-021

1.5 RNWST/WST S

Goal. Introduce airways navigation on a round-robin flight. Practice instrument flight procedures and instrument flight planning, takeoff/in-flight/landing checks and procedures.

Requirement. Perform airways navigation on a round-robin flight using maximum range enroute procedures. Review instrument flight planning, instrument flight procedures, instrument climb profile, intermediate level-off procedures, maximum range cruise profile, partial panel, unusual

attitudes, holding procedures, IFR penetration procedures, TACAN approach, missed approach procedures, and PAR. Review 1 auto flap VNSL, and 1 RVL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS and OPNAVINST 3710.

Prerequisite. SFAM-020.

SFAM-022

1.5 RNWST/WST S

Goal. Introduce minimum fuel PAR. Review instrument flight procedures, airways navigation, and instrument flight planning.

Requirement. Perform minimum fuel PAR. Review instrument flight planning, instrument flight procedures, instrument climb profile, intermediate level-off procedures, maximum range cruise profile, airways navigation, IFR penetration procedures and missed approach procedures. Review 1 STOL flap FNSL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS and OPNAVINST 3710.

Prerequisite. SFAM-021.

FAM-023

1.5 1 TAV-8B A

Goal. Introduce instrument flight planning, instrument flight procedures, approach procedures, and missed approach procedures.

Requirement. Perform instrument flight planning, instrument climb profile, intermediate level-off procedures, maximum range cruise profile, unusual attitudes, holding procedures, IFR penetration procedures, TACAN approach, PAR, and missed approach procedures. Review 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS and OPNAVINST 3710.

Prerequisite. SFAM-022.

FAM-024

1.5 1 TAV-8B A

Goal. Introduce airways navigation, round-robin flight, and minimum fuel GCA.

Requirement. Perform airways navigation, and minimum fuel PAR. Review instrument flight planning, instrument climb profile, intermediate level-off procedures, maximum range cruise profile, holding procedures, IFR penetration

procedures, TACAN approach, missed approach procedures, 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS and OPNAVINST 3710.

Prerequisite. FAM-023.

SFAM-025

1.5 RNWST/WST S

Goal. In-type instrument check.

Requirement. Perform a simulated IMC flight to include a non-precision approach to an unfamiliar field followed by a precision approach to that field or the home field. Review unusual attitude recovery.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS. Execute all instrument procedures IAW OPNAVINST 3710.

Prerequisite. IGS, FAM-024.

FAM-026

1.3 1 TAV-8B A

Goal. Introduce VFR straight-in and SAAHS-off decel to VL. Review takeoff/in-flight/landing checks, and procedures.

Requirement. PUI to conduct briefing. Perform VFR straight-in and SAAHS-off decel-VL. Review CTO, roll-and-go landing, VFR overhead, STOL flap STO, 1 STOL flap FNSL, 1 CL, 1 auto flap VNSL, 3 RVL, non-continuous VTO-accel, 1 decel-VL, and 1 press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-025.

SFAM-027

2.0 RNWST S

Goal. Introduce compound emergencies.

Requirement. Perform compound emergencies.

Performance Standards

Execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-026.

FAM-028

1.3 1 TAV-8B A

Goal. Safe for solo check.

Requirement. Review CTO, PAR, STOL flap STO, 1 STOL flap FNSL, 1 CL, 1 auto flap VNSL, 1 STOL flap VNSL, roll-and-go landing, 1 RVL, VTO-accel, 1 decel-VL, and 1 press-up.

Performance Standards
Execute all procedures IAW AV-8B NATOPS.

Prerequisite. SFAM-027.

FAM-029 1.3 1 AV-8B A

Goal. Solo Flight.

Requirement. Review CTO, GCA, STOL flap STO. Execute 1 STOL flap FNSL, 1 CL, 1 auto flap VNSL, 1 STOL flap VNSL, 1 roll-and-go landing, 1 RVL, VTO-accel, 1 decel-VL, 1 and press-up.

Performance Standards
Execute all procedures IAW AV-8B NATOPS.

Prerequisite. FAM-028.

3. Forward Base Operations (FBO)

- a. Purpose. Develop the requisite skills for FBO.
- b. General. A Landing Site Supervisor (LSS) shall supervise all events.
- c. Ground/Academic Training

(1) Readings

(a) AV-8B NATOPS Manual (A1-AV8BB-NFM-000). Chapter 9 Paragraph 9.3, Forward Operating Base

(b) Air NTTP 3-22.1-AV8B. Chapter 25, Basing Flexibility

(2) Lectures

(a) FBO Stage Brief

(b) Receive the following AV-8B Courseware lectures:

- 1. V/STOL Concept of Operations
- 2. Forward Base Operations

(3) Chalk Talks/Practical Application. None.

(4) Exams. FBO Ground School exam.

d. Flight and Simulator Event Training. (3 Events, 2.6 Hours).

SFBO-030 1.0 RNWST/WST S

Goal. Introduce FBO and emergency procedures.

Requirement. Conduct FBO operations and simulated emergency procedures. Perform 3 maximum performance STO and 4 precision RVL at an air facility.

Performance Standards
Satisfactorily execute all procedures IAW AV-8B NATOPS.
Achieve an average pass grade of 2.5.

Prerequisite. Complete FBO stage Ground/Academic training, FAM-029.

FBO-031 0.8 TAV-8B A

Goal. Introduce FBO.

Requirement. Conduct FBO operations at an air facility. Perform 3 maximum performance STO and 4 precision RVL.

Performance Standards
Satisfactorily execute all procedures IAW AV-8B NATOPS.
Achieve an average pass grade of 2.5.

Prerequisite. SFBO-030.

External Syllabus Support. Air Facility and LSS.

FBO-032 0.8 TAV-8B/AV-8B A

Goal. Review FBO.

Requirement. Review FBO operations. Perform 3 maximum performance STO, and 4 precision RVL.

Performance Standards
Satisfactorily execute all procedures IAW AV-8B NATOPS.
Achieve an average pass grade of 2.5.

Prerequisite. FBO-031.

External Syllabus Support. Air Facility with LSS.

4. Field Carrier Landing Practice (FCLP)

a. Purpose. Develop FCLP skills and qualify pilots FCLP(D).

b. General

(1) A launch officer and an Advanced or Training Day LSO are required for all events.

(2) A minimum of 30 vertical landings are required for completion.

(3) Completion of this stage constitutes FCLP(D) qualified.

c. Ground/Academic Training

(1) Readings

(a) VSTOL Shipboard and LSO NATOPS Manual (NAVAIR 00-80T-111)

1. Chapter 3, Field Carrier Landing Practice Procedures
2. Chapter 4, General Flight Procedures
3. Chapter 5, Deck Markings
4. Chapter 6, Recovery Procedures
5. Chapter 7, Deck Procedures
6. Chapter 8, Launch and Departure Procedures
7. Chapter 11, Emergency Procedures
8. Chapter 22, Communication
9. Chapter 23, Records

(b) LHA/LHD/MCS NATOPS Manual (NAVAIR 00-80T-106)

1. Chapter 4, Launching Aircraft
2. Chapter 5, Recovering Aircraft

(c) Air NTP 3-22.1-AV8B. Section 25.4 Sea-Basing

(2) Lectures

(a) FCLP Stage Brief

(b) Receive the following AV-8B Courseware lectures:

1. Day Carrier Qualification, Part 1
2. Day Carrier Qualification, Part 2
3. Field Carrier Landing Practice

(3) Chalk Talks/Practical Application. None.

(4) Exams. FCLP Ground School exam.

d. Flight and Simulator Event Training. (7 Events, 7.0 Hours).

SFCLP-035

1.0

RNWST/WST S

Goal. Introduce day FCLP normal and emergency procedures.

Requirement. Perform day FCLP normal and emergency FCLP procedures to a simulated L-class ship. Perform a Case 1 recovery, 5 VL and 4 STO.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, VSTOL LSO NATOPS, Shipboard Operating Bulletin and LHA/LHD NATOPS. Achieve an average pass grade of 2.5.

Prerequisite. Complete FCLP stage Ground/Academic training, FAM-029.

FCLP-036

1.0 1 AV-8B A

Goal. Introduce day FCLP.

Requirement. Perform day FCLP normal and emergency FCLP procedures to a simulated L-class ship. Perform a Case 1 recovery, 5 VL, 4 STO, and test waveoff. Introduce launch officer signals.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, VSTOL LSO NATOPS, Shipboard Operating Bulletin and LHA/LHD NATOPS. Achieve an average pass grade of 2.5.

Prerequisite. SFCLP-035.

External Syllabus Support. Simulated L-Class ship with LSO and launch officer.

FCLP-037

1.0 1 AV-8B A

Goal. Introduce simulated NORDO approach. Review day FCLP.

Requirement. Perform simulated NORDO approach. Review day FCLP normal and emergency procedures to a simulated L-class ship. Review a Case 1 recovery, 5 VL, 4 STO, and launch officer signals.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, VSTOL LSO NATOPS, Shipboard Operating Bulletin and LHA/LHD NATOPS. Achieve an average pass grade of 2.5.

Prerequisite. FCLP-036.

External Syllabus Support. Simulated L-Class ship with LSO and launch officer.

FCLP-038

1.0 1 AV-8B A

Goal. Review day FCLP.

Requirement. Review day FCLP normal and emergency procedures to a simulated L-class ship. Review a Case 1 recovery, 5 VL, 4 STO, and launch officer signals.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, VSTOL LSO NATOPS, Shipboard Operating Bulletin and LHA/LHD NATOPS. Achieve an average pass grade of 2.5.

Prerequisite. FCLP-037.

External Syllabus Support. Simulated L-Class ship with LSO and launch officer.

FCLP-039 1.0 1 AV-8B A

Goal. Review day FCLP.

Requirement. Review day FCLP normal and emergency procedures to a simulated L-class ship. Review a Case 1 recovery, 5 VL, 4 STO, and launch officer signals.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, VSTOL LSO NATOPS, Shipboard Operating Bulletin and LHA/LHD NATOPS. Achieve an average pass grade of 2.5.

Prerequisite. FCLP-038.

External Syllabus Support. Simulated L-Class ship with LSO and launch officer.

FCLP-040 1.0 1 AV-8B A

Goal. Review day FCLP.

Requirement. Review day FCLP normal and emergency procedures to a simulated L-class ship. Review a Case 1 recovery, 5 VL, 4 STO, and launch officer signals.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, VSTOL LSO NATOPS, Shipboard Operating Bulletin and LHA/LHD NATOPS. Achieve an average pass grade of 2.5.

Prerequisite. FCLP-039.

External Syllabus Support. Simulated L-Class ship with LSO and launch officer.

FCLP-041 1.0 1 AV-8B A

Goal. Day FCLP qualification.

Requirement. Review day FCLP normal and emergency procedures to a simulated L-class ship. Review a Case 1 recovery, 5 VL, 4 STO, and launch officer signals.

Performance Standards

Execute all procedures IAW AV-8B NATOPS, VSTOL LSO NATOPS, Shipboard Operating Bulletin and LHA/LHD NATOPS.

Achieve an average pass grade of 2.5.

Prerequisite. FCLP-040.

External Syllabus Support. Simulated L-Class ship with LSO and launch officer.

5. Formation

a. Purpose. Develop proficiency in section administrative formations.

b. General. A late stage FAM instructor is required for all events.

c. Ground/Academic Training

(1) Readings

(a) AV-8B NATOPS Manual (A1-AV8BB-NFM-000)

1. Chapter 9, Paragraph 9.1, Formation Flight

2. Chapter 22, Paragraph 22.4, Visual Communications

(b) Air NTTP 3-22.1-AV8B

1. Section 3.5 Tactical Formations and Maneuvering

2. Section 3.9 Battle Damage/Ordnance Checks

(2) Lectures

(a) FORM/TACFORM Stage Brief

(b) Receive the following AV-8B Courseware lectures:

1. Administrative Formation

2. Medium/High Altitude Tactical Formation

3. Low Altitude Tactical Formation

4. Division Tactical Formation

(3) Chalk Talks/Practical Application. None.

(4) Exams. Formation Ground School exam.

d. Flight and Simulator Event Training. (2 Events, 2.6 Hours).

FORM-045

1.3

2 TAV-8B or 1 AV-8B/1 TAV-8B A

Goal. Introduce administrative section formation.

Requirement. Perform taxi and marshal procedures, section CTO, stream STO, parade formation, cross under, lead change, cruise formation, running rendezvous, break up and rendezvous,

battle damage/ordnance checks, TACAN approach, and VFR break maneuver. Review 1 STOL flap FNSL and 1 auto flap VNSL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. Complete FORM stage Ground/Academic training, FAM-029.

Range Requirements. MOA , RSTD.

FORM-046

1.3 2 AV-8B A

Goal. Practice administrative section formation.

Requirement. Perform section PAR to low approach and full stop. Review taxi and marshal procedures, section stream STO, parade formation, cross under, lead change, cruise formation, running rendezvous, and break up and rendezvous. Review 1 CL, 1 RVL, and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS.

Prerequisite. FORM-045.

Range Requirements. MOA, RSTD.

6. Advanced Aircraft Handling

a. Purpose. Develop the requisite skills to fly at slow speed, high G, high and low altitude. Introduce basic and advanced Low Altitude Tactics.

b. General. Instructor shall be a Low Altitude Tactics Instructor (LATI) and late stage FAM instructor.

c. Ground/Academic Training

(1) Readings

(a) AV-8B NATOPS Manual (A1-AV8BB-NFM-000). Review Chapter 11, Flight Characteristics

(b) Air NTTP 3.22-1-AV8B

1. Chapter 4, Low Altitude Tactics

2. Chapter 22, Aircraft Handling Techniques and Procedures.

(c) AV-8B NATIP (NTRP 3-22.4). Chapter 7, Aircraft Performance

(d) AV-8B TACSOP. Low Altitude Tactics

(e) NAVMC DIR 3510.14, Aviation Training and Readiness Program Manual. Chapter 4, LAT Rules of Conduct

(f) AV-8B McDonnell Aircraft Company Product Support Digest

- Resistance System
1. AV-8B High AOA & Spin Program Part 1: Departure
 2. AV-8B High AOA & Spin Program Part 2: Spin Testing Phase
 3. Departure Resistance System
 4. Balancing Your DEPRES Account
 5. Aerodynamic and Flight Control Improvements
 6. Low Pressure Compressor Case Rub

(2) Lectures

(a) AAH Stage Brief

(b) Receive the following AV-8B Courseware lectures:

1. Aircraft Performance and Handling
2. AV-8B Departure Avoidance
3. 3D Maneuvering
4. Mission Crosscheck Time

(3) Chalk Talks/Practical Application. Aircraft Performance and Safety Working Group.

(4) Exams. Aircraft Handling and Departure Avoidance exam.

d. Flight and Simulator Event Training. (6 Events, 9.0 Hours).

SAAH-050 2.0 RNWST S

Goal. Introduce advanced aircraft handling.

Requirement. Perform G-awareness maneuver, FENCE checks, break and hard turns, aerobatics, 3-G weave, energy management and turn rate drills, accelerated/high speed stalls and slow speed departure. Review 1 STOL flap FNSL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. Complete AAH stage Ground/Academic training, FORM-046.

SAAH-051 2.0 RNWST S

Goal. Review advanced aircraft handling. Introduce basic LAT procedures and LAT rules of conduct.

Requirement. Perform RADALT checks, mission cross-check time (MCT), level high G turns, 50-percent rule, dive recovery rules, small descent rule, step down recovery, terminate, knock-it-off and climb-to-cope. Review G-awareness maneuver, FENCE checks, 1 CL and 1 STOL flap VNSL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. SAAH-050.

SAAH-052

2.0 RNWST S

Goal. Introduce advanced LAT procedures.

Requirement. Perform 2 Straight Oblique Jink (SOJ), 2 Vertical Jink (VJ), 2 Turning Oblique Jink (TOJ), 2 Reverse Oblique Jink (ROJ), 10-degree rule, and unloaded rolls. Review G-awareness maneuver, RADALT checks, FENCE checks, MCT, 50-percent rule, dive recovery rules, small descent rule, step down recovery, 1 auto flap VNSL, 1 decel-VL and 1 press-up.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. SAAH-051.

AAH-053

1.0 1 TAV-8B A

Goal. Introduce advanced aircraft handling.

Requirement. Perform G-awareness maneuver, FENCE checks, unloaded rolls, hard turns, turn rate drill, aerobatics, and 3-G weave. Review 1 CL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. SAAH-052.

Range Requirements. MOA, RSTD.

AAH-054

1.0 1 TAV-8B A

Goal. Introduce advanced LAT procedures.

Requirement. Perform RADALT checks, MCT, level high-G turns, SOJ, ROJ, TOJ, VJ, 50-percent rule, dive recovery rules, small descent rule, step down recovery, immediate recovery, maximum recovery, terminate, knock-it-off, climb-to-cope, and 3-G jink. Review G-awareness maneuver FENCE checks, 1 CL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. AAH-053.

Range Requirements. MOA, RSTD.

AAH-055 1.0 2 AV-8B A

Goal. Introduce slow speed departure and break turns. Practice advanced LAT procedures.

Requirement. Perform a slow speed departure and break turns. Review turn rate drills, aerobatics, 1 SOJ, 1 TOJ, 1 ROJ, and 1 VJ, 1 RVL, and 1 auto flap VNSL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. AAH-054.

Range Requirements. MOA, RSTD.

7. Tactical Formation

a. Purpose. Develop proficiency in section tactical formations. Introduce division administrative and tactical formations.

b. General. A basic instructor pilot is required for all events.

c. Ground/Academic Training

(1) Readings. Air NTP 3-22.1-AV8B. Review Section 3.5 Tactical Formations and Maneuvering

(2) Lectures. Review the following AV-8B Courseware lectures:

(a) Medium/High Altitude Tactical Formation

(b) Low Altitude Tactical Formation

(c) Division Tactical Formation

(3) Chalk Talks/Practical Application. None.

(4) Exams. None.

d. Flight and Simulator Event Training. (5 Events, 5.5 Hours).

TACFORM-060 1.1 2 TAV-8B A

Goal. Introduce section tactical formation at medium altitude.

Requirement. Perform offensive and defensive combat spread, deployed echelon formation, check turns, NAV turns, TAC turns, cross turns, hook turns, and shackle turns at medium altitude in the comm-in environment. Review 1 FNSL and 1 auto flap VNSL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. Complete TACFORM stage Ground/Academic training, AAH-055.

Range Requirements. MOA, RSTD.

TACFORM-061 1.1 2 AV-8B A

Goal. Introduce comm-out maneuvering at medium altitude.

Requirement. Perform fighter wing formation and comm-out maneuvering. Review offensive and defensive combat spread. Review check turns, NAV turns, TAC turns, cross turns, hook turns, and shackle turns at medium altitude in the comm-in environment. Review 1 STOL flap VNSL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. TACFORM-060.

Range Requirements. MOA, RSTD.

TACFORM-062 1.1 2 AV-8B A

Goal. Introduce section tactical formation at low level.

Requirement. Perform section formation as a wingman at low altitude. Perform defensive combat spread and comm-in turns to include check turns, NAV turns, TAC turns, cross turns, hook turns, and shackle turns at low level. Review RADALT checks, terrain clearance tasks, mission tasks (CT and NCMT), Mission Crosscheck Time (MCT) tasks, and G awareness maneuver. Review 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. TACFORM-061.

Range Requirements. MOA, RSTD.

TACFORM-063 1.1 2 AV-8B A

Goal. Introduce section tactical formation at high altitude.

Requirement. Perform energy sustaining turns (chased) and section formation as a wingman at or above 25,000 feet. Review offensive combat spread and comm-in and comm-out turns to include check turns, NAV turns, TAC turns, cross turns, hook turns, and shackle turns. Review 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. TACFORM-062.

Range Requirements. MOA, RSTD.

TACFORM-064 1.1 4 TAV-8B A

Goal. Introduce division formation at medium altitude.

Requirement. Perform division formation procedures including division marshal procedures, division stream STO, balanced parade formation, fingertip formation, running rendezvous, break up and rendezvous, division box, division cruise, deployed echelon, wedge, fluid 4 formations, and division VFR break. Review 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS Air NTTP 3-22.1-AV8B, and AV-8B TACSOP.

Prerequisite. TACFORM-063.

Range Requirements. MOA, RSTD.

8. Navigation

a. Purpose. Develop the requisite skills integrating aircraft navigation systems to plan and execute navigation flights using aeronautical charts and visual checkpoints.

b. General. A basic instructor pilot is required for all events.

c. Ground/Academic Training

(1) Readings. AV-8B NATIP (NTRP 3.22-4)

(a) Section 2.2, Inertial Navigation System

(b) Section 2.3, Global Positioning System

(2) Lectures

(a) NAV Stage Brief

(b) Receive the following AV-8B Courseware lectures:

1. Low Level Navigation
2. OSCAR Navigation Systems Changes

(3) Chalk Talks/Practical Application. None.

(4) Exams. Navigation Ground School exam.

d. Flight and Simulator Event Training. (2 Events, 3 Hours).

SNAV-065 1.5 RNWST S

Goal. Introduce navigation at low altitude.

Requirement. Perform navigation at low altitude on a MTR. Navigate to start point. Perform navigation at low level using systems, visual navigation techniques, chart interpretation, and visual checkpoint identification. Perform flyover of final point at preplanned TOT.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS. Over fly the final point within +/- 20 seconds of planned timing and within +/- 500 pounds of planned fuel.

Prerequisite. Complete NAV stage Ground/Academic training, AAH-055.

SNAV-066 1.5 RNWST S

Goal. Introduce navigation differences of OSCAR OFF.

Requirement. Perform navigation at low altitude on a MTR in an OSCAR configured simulator emphasizing MPCD display, TACAN, Waypoint, Markpoint, Command Speed/Time, Waypoint Overfly, Non-Sequential route strings, HUD symbology differences, Target point, Steer-to-point, Point of Interest, Quick Access, and Null Points.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS. Over fly the final point within +/- 20 seconds of planned timing and within +/- 500 pounds of planned fuel.

Prerequisite. SNAV-065.

9. Intercepts

a. Purpose. Introduce RADAR trail departures and intercepts against a non-maneuvering target.

b. General

- (1) All flight events will be flown on a TACTS range.

(2) An RTO shall be used to the maximum extent possible.

(3) The instructor shall be ACM qualified.

c. Ground/Academic Training

(1) Readings

(a) AV-8B NATOPS Manual (A1-AV8BB-NFM-000). Chapter 7, Paragraph 7.3.4.6, RADAR Trail Departure

(b) AV-8B NATIP (NTRP 3.22-4)

1. Section 1.1, Electromagnetic Theory
2. Section 1.2, RADAR Theory
3. Section 2.1.1, RADAR Set Component Description
4. Section 2.1.3, Air-to-Air RADAR Modes and Operation
5. Section 2.1.4, RADAR Pre-Flight Management

(c) AV-8B Tactical Manual Volume III. Section 6.9, AN/APG-65 ECCM Displays

(d) Air NTP 3-22.1-AV8B

1. Section 3.6 Combat Holding
2. Section 15.4 Tactical Intercepts
3. Section 16.3 Command and Control
4. Section 16.4 Bullseye Positioning With C1.0+ (87X)

(e) TACSOP

1. Anti-Air Warfare
2. ACM Training Rules

(f) ALSA Communication Brevity

(2) Lectures. Receive the following AV-8B Courseware lectures:

(a) RADAR Theory

(b) Air-to-Air RADAR Considerations

(c) Air-to-Air RADAR Controls and Displays

(d) Basic Intercept Geometry, Part 1

(e) Basic Intercept Geometry, Part 2

(f) Air-to-Air Search Techniques

- (g) Introduction to Air Intercept Control
- (h) APG-65 Classified Annex [SECRET]
- (3) Chalk Talks/Practical Application. None.
- (4) Exams. Air-to-Air RADAR and Intercepts exam.
- d. Flight and Simulator Event Training. (7 Events, 9.9 Hours).

- SINT-070 1.5 MTT S
- Goal. Introduce A/A RADAR controls and displays.
- Requirement. Utilize A/A RADAR controls and displays.
- Performance Standards
Satisfactorily execute all procedures IAW AV-8B NATOPS, Air
NTTP 3-22.1-AV8B and TACSOP.
- Prerequisite. Complete INT stage Ground/Academic training,
FORM-046.
-
- SINT-071 1.5 MTT S
- Goal. Introduce A/A RADAR intercept.
- Requirement. Perform 6 collision course intercepts on a non-
maneuvering target.
- Performance Standards
Satisfactorily execute all procedures IAW AV-8B NATOPS, Air
NTTP 3-22.1-AV8B and TACSOP.
- Prerequisite. SINT-070.
-
- SINT-072 1.5 MTT S
- Goal. Introduce RADAR intercept.
- Requirement. Perform 4 break collision range (BCR) and 4
forward hemisphere all weather intercepts (AWI) on a non-
maneuvering target. Review 1 collision course intercepts.
- Performance Standards
Satisfactorily execute all procedures IAW AV-8B NATOPS, Air
NTTP 3-22.1-AV8B and TACSOP.
- Prerequisite. SINT-071.
-
- SINT-073 1.5 RNWST S
- Goal. Introduce RADAR intercepts and CAP procedures.
- Requirement. Perform CAP procedures and 6 collision course
intercepts on a non-maneuvering target.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.

Prerequisite. SINT-072.

SINT-074

1.5 RNWST S

Goal. Introduce RADAR intercepts.

Requirement. Perform 3 BCR and 3 forward hemisphere AWI on a non-maneuvering target. Review CAP procedures and 1 collision course intercept.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.

Prerequisite. SINT-073.

INT-075

1.2 2 AV-8B R A

Goal. Introduce RADAR intercepts.

Requirement. Perform RADAR trail departure, RADAR RWR checks, CAP procedures and 5 collision course intercepts on a non-maneuvering target. Review 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.

Prerequisite. SINT-074.

Ordnance. TACTS POD.

Range Requirements. AA, TACTS.

External Syllabus Support. TACTS debrief facility.

INT-076

1.2 2 AV-8B R A

Goal. Review RADAR intercepts.

Requirement. Perform 2 BCR and 3 AWI on a non-maneuvering target. Review RADAR trail departure, RADAR RWR checks, CAP management. Review 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.

Prerequisite. INT-075.

Ordnance. TACTS POD.

Range Requirements. AA, TACTS.

External Syllabus Support. TACTS debrief facility.

10. Air-to-Air Refueling

a. Purpose. Introduce day Air-to-Air refueling procedures.

b. General

(1) An FRS AAR basic instructor pilot is required for all events.

(2) Completion of this stage constitutes day AAR qualified.

c. Ground/Academic Training

(1) Readings

(a) AV-8B NATOPS Manual (A1-AV8BB-NFM-000). Chapter 9, Paragraph 9.2, Air Refueling

(b) Aerial Refueling NATOPS Manual

(c) ATP-56(B), Air-to-Air Refueling

(d) AV-8B TACSOP. Air-to-Air Refueling

(2) Lectures

(a) AAR Stage Brief

(b) Receive the following AV-8B Courseware lectures: Aerial Refueling

(3) Chalk Talks/Practical Application. None.

(4) Exams. Aerial Refueling Ground School exam.

d. Flight and Simulator Event Training. (1 Event, 1.5 Hours).

AAR-080 1.5 2 AV-8B A

Goal. Day Air-to-Air Refueling qualification.

Requirement. Perform day in-flight refueling from a USMC/USN/USAF refueling platform in the comm-in environment. Perform 2 wet and 4 dry plugs. Review 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Aerial Refueling NATOPS and TACSOP.

Prerequisite. Complete AAR stage Ground/Academic training, TACFORM-064.

Range Requirements. AAR.

External Syllabus Support. Aerial refueling platform.

11. Threat Countertactics (TCT)

a. Purpose. Introduce the AV-8B EW suite and surface-to-air threat countertactics.

b. General

(1) All flights shall be flown on an EW range with TACTS coverage.

(2) An RTO shall be used to the maximum extent possible.

(3) A Weapons Training Officer (WTO) and late stage FAM instructor shall instruct all events.

c. Ground/Academic Training

(1) Readings

(a) AV-8B NATOPS Manual (A1-AV8BB-NFM-000). Chapter 30, Expendable Dispensers

(b) Air NTTP 3-22.1-AV8B 3.22-1-AV8B

1. Section 24.1 Surface to Air Threat

2. Section 24.2 Surface to Air Threat Countertactics

3. Appendix B Prisoner of War Survey

4. Appendix C E-pole Determination

5. Appendix D Threat Countertactics Summary

(c) CY2004 User's Manual

(d) ALSA Communication Brevity

(e) AV-8B TACSOP. Threat Countertactics

(2) Lectures

(a) TCT Stage Brief

(b) Receive the following AV-8B Classified Courseware lectures:

1. Expendable Decoys

2. ALR-67 RADAR Warning Receiver

3. ALE-39 Countermeasure Dispensing System

4. ALQ-164 Defensive Electronic Countermeasures

5. Threat RADAR Fundamentals

(c) MAWTS-1 Generic Courseware

1. Non-RF Surface-to-Air Missiles
2. RF Surface-to-Air Missiles
3. AAA Systems
4. Threat Briefing

(d) MAWTS-1 Common Courseware. Threat Countertactics

(3) Chalk Talks/Practical Application. None.

(4) Exams. Threat Countertactics Ground School exam.

d. Flight and Simulator Event Training. (4 Events, 5.0 Hours).

STCT-085 1.5 RNWST S

Goal. Introduce EW suite and surface-to-air threat countertactics at medium altitude.

Requirement. Perform setup and employment of the ALE-39, ALR-67, and ALQ-164. Perform ALSA communications, lean, notch, level-S, guns jink, SAM weave, and E-pole tactics. Utilize decision matrix for jettison criteria. Perform pre-emptive and reactive expendable game plans.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.
Satisfactory communications IAW ALSA Communication Brevity.

Prerequisite. Complete TCT stage Ground/Academic training, TACFORM-064.

STCT-086 1.5 RNWST S

Goal. Introduce medium to low altitude transition and surface-to-air threat countertactics at low altitude.

Requirement. Perform medium to low altitude deck transition, lean, notch, level-S, guns jink, and SAM weave at low altitude. Review ALSA communications, pre-emptive and reactive expendable game plans, and ALE-39, ALR-67, and ALQ-164 setup and employment.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.
Satisfactory communications IAW ALSA Communication Brevity.

Prerequisite. STCT-085.

TCT-087 1.0 2 AV-8B A

Goal. Introduce surface-to-air threat countertactics at medium and low altitude.

Requirement. As a chased aircraft, perform ALSA communications, lean, notch, level-S, guns jink, SAM weave and E-pole tactics at medium altitude. Perform medium to low deck transition, lean, notch, level-S, guns jink, and SAM weave at low altitude. Utilize decision matrix for jettison criteria. Perform pre-emptive and reactive expendable game plans. Review ALE-39, ALR-67, and ALQ-164 setup and employment. Review 1 RVL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.

Satisfactory communications IAW ALSA Communication Brevity.

Prerequisite. STCT-086, VCON-125.

Ordnance. ALQ-164, 40 chaff/10 flares, TACTS pod.

Range Requirements. TACTS range, Electronic Warfare range.

External Syllabus Support. TACTS, Hi Fi EW.

TCT-088 1.0 2 AV-8B A

Goal. Introduce section surface-to-air threat countertactics at medium altitude.

Requirement. Perform section surface-to-air threat countertactics and contracts to include lean, notch, level-S, and SAM weave. Utilize decision matrix for jettison criteria. Review ALSA communications, and pre-emptive and reactive expendable game plans. Review 1 STOL flap FNSL and 1 decel-VL.

Performance Standards

Satisfactorily execute all procedures IAW AV-8B NATOPS, Air NTTP 3-22.1-AV8B and TACSOP.

Prerequisite. TCT-087.

Ordnance. ALQ-164, 40 chaff/10 flares, TACTS pod.

Range Requirements. TACTS, Hi Fi EW.

External Syllabus Support. TACTS/EW debrief facility.

12. Air-to-Surface

- a. Purpose. Develop proficiency in Basic Conventional Weapons Delivery (BCWD) skills, section tactical formation, and ALSA communications.

b. General

(1) Scored ranges will be used to the maximum extent possible. If unavailable, performance criteria will be IAW the AV-8B TACSOP.

(2) A Weapons Training Officer (WTO) is required for all events.

c. Ground/Academic Training

(1) Readings

(a) AV-8B NATIP (NTRP 3-22.4)

1. Section 2.1.2 Air-to-Surface RADAR Modes and Operation
2. Section 2.4 Angle Rate Bombing System (ARBS)
3. Section 2.5 Stores Management Control Set (SMCS)
4. Section 4.1 Suspension / Carriage Equipment
5. Section 4.2 Air-to-Ground Stores
6. Section 4.5 Fuzing
7. Section 5.1 Weapon System Theory
8. Section 5.2 Controls & Displays
9. Section 5.3 Target Designation
10. Section 5.4 Delivery Modes
11. Section 5.5 Reversion Modes
12. Section 5.6 RADAR Attack Considerations
13. Section 5.7 Weapon Jettison
14. Section 5.8 Bombing
15. Section 5.9 Rocketry
16. Section 5.10 Gun Theory
17. Chapter 8 Weaponeering

(b) Air NTP 3-22.1-AV8B

1. Section 7.1 General
2. Section 7.2 Air to Ground Timeline
3. Section 7.5 Dive Delivery Techniques
4. Section 7.7 Air to Ground Gunnery

5. Section 7.8 Rocketry

(c) AV-8B TACSOP. Air-to-Surface

(d) ALSA Communication Brevity

(2) Lectures

(a) AS Stage Brief

(b) Receive the following AV-8B Courseware lectures:

1. Introduction to Mission Publications
2. A/G Weapons Delivery Theory
3. Computed Delivery Theory
4. Suspension Equipment
5. GP Bombs
6. GP Bomb Fuzing
7. 25 mm Gun
8. Rockets
9. Weapon Limits and Restrictions
10. Weaponeering
11. Multiple Weapons Release Weaponeering
12. Forward-Firing Ordnance and Weaponeering
13. WARP
14. Laser Theory
15. Angle Rate Bombing System (ARBS)
16. Air-to-Surface RADAR Controls and Displays
17. RADAR Display Interpretation and Predictions
18. Air-to-Surface RADAR Procedures
19. Air-to-Surface RADAR Navigation and Attack
20. Height Above Target
21. Target Designation Methods
22. SMS & Weapon System Programming
23. SMS & Weapon System Programming OSCAR