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N-V-M
PROTOTYPE TRAINER

Task Listing Report

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N-V-M
 PROTOTYPE TRAINER

Task Listing Report



January 12, 1989

Prepared for
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F/A-18 PILOT TASK LISTING

INTRODUCTION

This report is being submitted in response to Data Item Description A003 of Contract Number N61339-88-C-0069. The report contains two task listings describing the tactical aspects of the F/A-18 pilot's attack and fighter missions.

The task listing found in Appendix A is an overall description of the pilot's total job in the three areas of air-to-air, air-to-ground, and defensive tactics. Those tasks which are prefaced with an asterisk are of a comparatively low priority and could be eliminated, if deemed desirable, from consideration as tasks to be trained in a simulator. The remaining tasks would be potentially appropriate for training on a deployable HOTAS trainer.

The second task listing (Appendix B) was compiled in response to a special request from NTSC to review the overall task listing and sort out those tasks that would be potentially appropriate for inclusion in the generic N-v-M Trainer now under development under the above contract. As discussed above, the asterisked tasks are of a low priority and would not necessarily require incorporation into a generic N-v-M trainer.

F/A-18 PILOT TASK LISTING

- 1.0 Perform air-to-air tactics
 - 1.1 Perform pre-air-to-air combat checks
 - 1.1.1 Locate and identify controls and displays
 - 1.1.2 Set up air-to-air master mode of operation
 - 1.1.3 Check missile/gun status
 - 1.1.4 Set up radar for air-to-air mission
 - 1.1.5 Set up ECM equipment
 - 1.1.6 Perform missile checks
 - 1.2 Perform medium range intercept profile
 - 1.2.1 Perform air-to-air target search
 - 1.2.1.1 Operate radar in search
 - 1.2.1.2 Select radar modes
 - 1.2.2 Perform radar target acquisition
 - 1.2.2.1 Interpret search displays
 - 1.2.2.2 Modify radar configuration
 - 1.2.2.2.1 Evaluate situation
 - 1.2.2.2.2 Modify parameters
 - 1.2.2.3 Identify cues/symbology in search
 - 1.2.2.4 Identify targets
 - 1.2.2.5 Perform target lock-on

1.2.2.6	Interpret track display
1.2.2.6.1	Select raid assessment
1.2.3	Fly intercept profile
1.2.3.1	Perform intercept approach phase
1.2.3.1.1	Select tactics
1.2.3.2	Perform intercept attack phase
1.2.3.3	Perform attack
1.3	Perform weapons delivery
1.3.1	Perform auto acquisition
1.3.1.1	Select auto acquisition modes
1.3.1.2	Locate controls
1.3.1.3	Interpret displays
1.3.1.4	Acquire target
1.3.1.5	Reject target
1.3.1.6	Return to search
1.3.2	Perform AIM-7 launch
1.3.2.1	Set up weapon system
1.3.2.1.1	Locate controls and displays
1.3.2.2	Perform final attack steering
1.3.2.3	Initiate missile launch
1.3.2.3.1	Verify launch parameters
1.3.2.4	Maintain post-launch guidance
1.3.2.5	Sequence to next weapon
1.3.2.5.1	Locate controls
1.3.2.6	Assess weapon's effect

- 1.3.3 Perform AIM-9 launch
 - 1.3.3.1 Set up weapon system
 - 1.3.3.2 Perform seeker head/target lock-on
 - 1.3.3.2.1 Perform radar slaved lock-on
 - 1.3.3.2.1.1 Identify aural indications
 - 1.3.3.2.2 Perform boresight lock-on
 - 1.3.3.2.2.1 Identify aural indications
 - 1.3.3.3 Verify in-envelop flight
 - 1.3.3.4 Initiate missile launch
 - 1.3.3.5 Sequence to next weapon
 - 1.3.3.6 Assess weapon's effect
 - 1.3.4 Perform gun attack
 - 1.3.4.1 Set up weapon system
 - 1.3.4.1.1 Locate controls/displays
 - 1.3.4.4 Assess weapon's effect
- 1.4 Perform post air-to-air combat checks
 - 1.4.1 Locate controls/displays
- 2.0 Perform air-to-ground tactics
 - 2.1 Perform air-to-ground combat checks
 - 2.1.1 Locate controls/displays
 - 2.1.2 Set up/check radar
 - 2.1.3 Check missile/gun status
 - 2.1.4 Perform air-to-ground weapons configuration

2.1.5		Perform air-to-ground weapons checks
2.1.6		Set up ECM equipment
2.2		Perform mission specific tactics
2.2.1		Perform specified mission
2.3		Perform navigation
2.3.1		Perform visual navigation
2.3.1.1		Maintain course plan
2.3.1.2	*	Perform chart/geography correlation
2.3.1.3	*	List significant time checkpoints
2.3.2	*	Perform INS navigation
2.3.3		Perform radar navigation
2.3.3.1		Operate radar
2.3.3.1.1		Select radar modes
2.3.3.1.1.1		Evaluate situation
2.3.3.1.1.2		Locate controls/displays
2.3.3.1.2		Modify radar configuration
2.3.3.1.2.1		Modify parameters
2.3.3.1.2.1.1		Locate controls/displays
2.3.3.1.2.2		Select/deselect options
2.3.3.1.2.3		Locate controls/displays
2.3.3.2	*	Perform chart/display correlation
2.3.3.2.1	*	Identify situation on chart
2.3.3.2.2	*	Correlate significant radar orientation features

2.4		Perform air-to-ground weapon delivery
2.4.1		Perform target designation/acquisition
2.4.1.1		Select method
2.4.1.2		Perform visual designation
2.4.1.3		Locate controls/displays
2.4.1.4	*	Perform NAV designation
2.4.1.5		Perform radar designation
2.4.1.6		Perform FLIR designation
2.4.1.7	*	Perform LST designation
2.4.1.8		Perform HARM acquisition
2.4.1.9	*	Perform WALLEYE acquisition
2.4.1.10	*	Perform MAVERICK acquisition
2.4.1.11	*	Perform MAP designation
2.4.1.12	*	Analyze system drift
2.4.1.13		Perform target/OAP redesignation
2.4.1.14		Locate controls/displays
2.4.2		Perform weapon delivery
2.4.2.1		Select weapon
2.4.2.2		Perform general purpose bomb delivery
2.4.2.2.1		Select options
2.4.2.2.2		Select mode
2.4.2.2.3		Select delivery mode profile
2.4.2.2.4	*	Select fuzing
2.4.2.2.5	*	Select drag
2.4.2.2.6	*	Select sequence
2.4.2.2.7	*	Select parameters

2.4.2.2.8		Perform delivery
2.4.2.3	*	Perform LGB delivery
2.4.2.4	*	Perform APAM delivery
2.4.2.4.1	*	Select mode
2.4.2.4.2	*	Select maneuver
2.4.2.4.3	*	Select fuzing
2.4.2.4.4	*	Select sequence
2.4.2.4.5	*	Select parameters
2.4.2.5	*	Perform Rockeye delivery
2.4.2.6	*	Perform FAE delivery
2.4.2.6.1	*	Select options
2.4.2.6.2	*	Select mode
2.4.2.6.3	*	Select maneuver
2.4.2.6.4	*	Select sequence
2.4.2.6.5	*	Select parameters
2.4.2.6.6	*	Select fuzing
2.4.2.7		Perform strafing
2.4.2.7.1		Select options
2.4.2.7.2		Calculate reticle depression
2.4.2.7.3		Perform manual mode strafing
2.4.2.7.4		Locate controls/displays
2.4.2.8	*	Perform WALLEYE delivery
2.4.2.8.1	*	Select options
2.4.2.8.2	*	Perform delivery
2.4.2.9	*	Perform MAVERICK delivery

2.4.2.10		Perform HARM delivery
2.4.2.10.1		Select options
2.4.2.10.2		Perform pre-briefed delivery
2.4.2.10.3		Perform TOO delivery
2.4.2.10.4		Perform self-protect delivery
2.4.2.11	*	Perform flare delivery
2.4.2.11.1	*	Locate controls/displays
2.4.3	*	Perform recovery maneuver
2.4.4	*	Perform reattack
2.4.4.1	*	Interpret symbology/displays
3.0		Perform defensive tactics
3.1		Set up ECM equipment
3.1.1		Set up receiver
3.1.1.1		Locate controls/displays
3.1.1.2		Set up options
3.1.2		Set up repeater
3.1.3		Set up dispenser
3.1.3.1		Select options
3.2		Counter threats
3.2.1		Identify threats via cockpit visual and aural cues
3.2.1.1		Identify bomber threats
3.2.1.2		Identify fighter threats

3.2.1.3 Identify air-to-air threats
3.2.1.4 Identify land based surface-to-air threats
3.2.2 Respond to air-to-air threats
3.2.2.1 Select counter
3.2.2.2 Counter IR missile threats
3.2.2.2.1 Perform defensive maneuvers
3.2.2.2.2 Perform ECM
3.2.2.2.3 Dispense chaff/flares
3.2.2.3 Counter radar guided missile threat
3.2.2.3.1 Perform defensive maneuvers
3.2.2.3.2 Perform ECM
3.2.2.3.3 Dispense chaff/flares
3.2.3 Counter gun threat
3.2.3.1 Perform ECM
3.2.3.2 Dispense chaff/flares
3.2.4 Counter AAA threats
3.2.4.1 Identify AAA threats
3.2.4.2 Respond to AAA threats
3.2.4.2.1 Select counter
3.2.4.2.2 Perform to counter AAA threat
3.2.4.2.3 Perform aircraft maneuvering
3.2.4.2.4 Perform ECM
3.2.4.2.5 Dispense chaff/flares
3.2.5 Counter surface-to-air missile (SAM) threat
3.2.5.1 Identify SAM threat

- 3.2.5.2 Respond to SAM threat
- 3.2.5.2.1 Select counter
- 3.2.5.3 Perform counter to SAM threat
- 3.2.5.3.1 Perform aircraft maneuvering
- 3.2.5.3.2 Perform ECM
- 3.2.5.3.3 Dispense chaff/flares
- 3.2.5.3.4 * Perform HARM delivery

POTENTIAL TRAINING TASKS
FOR
A GENERIC N-V-M TRAINER

I. Perform Air-to-Air Tactics

- A. Set up air-to-air master mode of operation
- B. Set up radar for air-to-air operation
- C. Set up ECM equipment
- D. Check missile/gun status
- E. Perform missile checks
- F. Operate radar in search function
- G. Modify radar mode of operation
- H. Identify targets
- I. Perform target lock-on
- J. Fly intercept profile
- K. Perform weapon delivery
 - (1) Perform auto acquisition
 - (2) Acquire target
 - (3) Reject target
 - (4) Return to search

L. Perform AIM-7 launch

- (1) Set up weapon system
- (2) Perform final attack steering
- (3) Initiate missile launch
- (4) Maintain post-launch guidance
- (5) Sequence to next weapon
- * (6) Assess weapon effects

M. Perform AIM-9 launch

- (1) Perform seeker head/target lock-on
- (2) Identify aural indication
- (3) Perform boresight lock-on
- (4) Verify in-envelop flight
- (5) Initiate missile launch
- (6) Sequence to next weapon
- * (7) Assess weapon effects

* N. Perform gun attack

- * (1) Set up weapon system
- * (2) Track target
- * (3) Activate guns
- * (4) Assess weapon effects

II. Perform Air-to-Ground Tactics

- A. Set up air-to-ground master mode of operation
- B. Set up/check radar
- C. Check weapons configuration
- D. Perform weapons checks

E. Perform mission specific tactics

F. Perform navigation

1. Perform radar navigation
2. Perform visual navigation
3. Modify radar configuration

G. Perform target designation

1. Visual

*

2. NAV

3. Radar

4. FLIR

*

5. LST

H. Perform target acquisition

1. HARM

*

2. WALLEYE

*

3. MAVERICK

I. Perform target/OAP redesignation

J. Perform weapon delivery

1. General purpose bomb

*

2. LGB

*

3. APAM

*

4. Rockeye

*

5. FAE

*

6. Strafing

*

7. WALLEYE

*

8. MAVERICK

9. HARM

- a. Pre-briefed delivery
- b. TOO delivery
- c. Self-protect delivery

* 10. Flare

III. Perform defensive tactics

A. Set up ECM equipment

B. Set up receiver

C. Set up dispenser

D. Counter threats

E. Identify targets

- * 1. Bombers
- 2. Fighters
- 3. Air-to-air missiles
- 4. Land based surface-to-air threats
- F. Respond to air-to-air threats
 - 1. Counter IR missile threat
 - a. Perform defensive maneuvers
 - b. Dispense chaff/flares
 - 2. Counter radar guided missile threat
 - a. Perform defensive maneuvers
 - b. Dispense chaff/flares
 - * 3. Counter gun threat
- G. Respond to surface-to-air threats
 - 1. Counter AAA threats
 - a. Identify AAA threats

- b. Perform aircraft maneuvering
 - c. Dispense chaff/flares
- 2. Counter surface-to-air missile (SAM) threats
 - a. Identify SAM threat
 - b. Perform aircraft maneuvering
 - c. Dispense chaff/flares
- 3. Perform HARM delivery