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NAVAL FLIGHT OFFICER FUNCTION ANALYSIS.
FINAL REPORT. COMMONALITY OF
OPERATIONAL FUNCTIONS

Richard E. Doll

Naval Aerospace Medical Research Laboratory
Pensacola, Florida

2 November 1973

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NAVAL FLIGHT OFFICER FUNCTION ANALYSIS. FINAL REPORT

COMMONALITY OF OPERATIONAL FUNCTIONS

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Bureau of Medicine and Surgery
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13. ABSTRACT During 1972, the Naval Aerospace Medical Research Laboratory (NAMRL) conducted a series of investigations analyzing the operational functions of the NFO. A major part of that series involved the determination of the tasks performed by the NFO in various aircraft. Specifically, the NFO positions examined were: P-3C NAVCOM, P-3B TACCO, P-3C TACCO, RA-5C RAN, A-6 B/N, EA-6 ECMO, E-2 CICO, and F-4 RIO. For each of the NFO positions a Function Description Inventory (FDI) was developed. The purpose of this part of the study was to develop a compendium of functions encompassing all the duties and tasks contained in the various FDIs, to have this compendium reviewed by NFO personnel of all the respective operational squadrons and to do a cross-comparison based on these data to provide information as to which NFO communities perform the tasks and to what extent. This report provided a useful compendium of functions and tasks required to be performed by the operational NFO community. This publication, along with the eight volumes of the NFO Function Analysis, should be useful to personnel responsible for evaluating, revising, or developing NFO training programs.			

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SUMMARY PAGE

During 1972, the Naval Aerospace Medical Research Laboratory (NAMRL) conducted a series of investigations analyzing the operational functions of the NFO. A major part of that series involved the determination of the tasks performed by the NFO in various aircraft. Specifically, the NFO positions examined were: P-3C NAVCOM, P-3B TACCO, P-3C TACCO, RA-5C RAN, A-6 B/N, EA-6 ECMO, E-2 CICO, and F-4 RIO. For each of the NFO positions a Function Description Inventory (FDI) was developed. The purpose of this part of the study was to develop a compendium of functions encompassing all the duties and tasks contained in the various FDI's, to have this compendium reviewed by NFO personnel of all the respective operational squadrons and to do a cross-comparison based on these data to provide information as to which NFO communities perform the tasks and to what extent.

This report provided a useful compendium of functions and tasks required to be performed by the operational NFO community. This publication, along with the eight volumes of the NFO Function Analysis, should be useful to personnel responsible for evaluating, revising, or developing NFO training programs.

ACKNOWLEDGEMENTS

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BACKGROUND

The Chief of Naval Operations (CNO), in the course of reviewing training effectiveness, has recognized a need for a continuing, comprehensive effort to develop data that can be used as the basis for revisions to Naval Flight Officer (NFO) training programs, and to aid in determining future training equipment requirements and characteristics.

In response to this need, CNO requested assistance from the Chief, Bureau of Medicine and Surgery (BUMED) in conducting a series of investigations analyzing the operational functions of the NFO. This project was assigned to the Aerospace Psychology Department, Naval Aerospace Medical Research Laboratory. The approach adopted by the NAMRL research team consisted of the following two phases; viz, the Function Analysis (Phase One), and The Commonality Analysis (Phase Two).

Phase One surveyed the following eight NFO positions: P3C NAVCOM, P3B TACCO, P3C TACCO, RA5C RAN, A6 B/N, EA-6 ECMO, E-2 CICO and F-4 RIO. The Function Analysis involved the determination of (1) the roles, duties, and tasks performed by the NFO in a given aircraft, (2) what percentages of NFOs did a given task/duty, (3) how much time and effort were spent on the various roles, duties and tasks, and (4) the importance of the tasks and duties. The approach used during this first phase of the project combined some of the best features of the checklist, open-ended questionnaire, and interview methods. The principal tool used was an inventory or detailed list of activities. The inventory method had the advantage of being simple in that the NFOs merely checked their rating of the roles, duties and tasks listed, and then wrote in only those duties and tasks which did not appear. The procedure was economical in that it allowed for a broad sampling, a ready synthesis of a large amount of information, a high level of standardization, and lent itself to computer analysis of the data provided by the inventory.

The inventories developed were referred to as the NFO Function Description Inventories (FDI) in general, or the P-3C TACCO FDI, F-4 RIO FDI, A-6 B/N FDI, etc., when referring to a specific FDI.

The attempt of each FDI was to cover all the respective NFOs' operational activities. This included, in addition to the NFOs activities in flight, any duties and tasks directly related to the flight's mission prior to the flight. Activities outside this framework (e.g., collateral duties) were not included in the inventory. The NFOs' operational mission activities were categorized into the following three hierarchical levels:

1. Role - a broad category of activity considered to exist for all NFOs regardless of type (except in the case of the P-3C NAVCOM). Each role may encompass a number of duties and tasks. Six such roles were identified: Communicator/Coordinator, Navigator, Tactician, Sensor Manager, Weapons

Manager, and Assessor of Systems. These six roles encompassed 100 per cent of the responsibilities of the NFOs within an operational mission framework.

2. Duty - a large segment of activity performed by an NFO. All the duties under a role in combination define 100 per cent of the role.

3. Task - a unit of work activity which forms a significant part of a duty. All the tasks under a duty in combination define 100 per cent of the duty.

The two scales used in the FDI for rating tasks, duties, and roles were "Part of Position" and "Criticality." The "Part of Position" rating consisted of a seven-point scale measuring the relative proportion of time and effort required to perform each task/duty/role within the given frame of reference provided in the instructions. The "Criticality" rating consisted of a seven-point scale reflecting the relative importance of each task/duty/role.

The procedural steps followed in the development of an FDI were:

1. Source material was acquired to provide guidelines for the selection and wording of duties and tasks.

2. Local technical advisors (NFOs experienced in the particular aircraft under study) reviewed pools of duty and task items for applicability, and developed additional items.

3. A preliminary FDI was developed based on reviewer comments, recommendations, and additions to the duty/task list.

4. Selected members of a Readiness Air Group (RAG) squadron for the subject aircraft reviewed the preliminary inventory.

5. On the basis of this review a final FDI was developed for each NFO position and mailed to the respective operational squadrons in the fleet to be responded to by the ten (10) most experienced NFOs in the squadron.

When a final FDI had been developed and was ready for mailing, ten (10) copies of the FDI, along with a cover letter from the Chief of Naval Operations, and two control sheets, were boxed and sent to the respective squadron commanding officers. The cover letter provided background information about the project and instructions that the inventories were to be returned within seven days of receipt. This procedure provided a return rate well above the usual 40% - 60% rate experienced by others in their use of the mailing inventory approach.

The massive amounts of data generated by the inventories necessitated, at least in part, a processing and analysis by an automatic data processing and computer system. Information from completed FDIs received from the fleet was coded, key-punched, stored, and computer analyzed by a UNIVAC 418 computer

system. The computer analysis involved generating frequency distributions; computing means, standard deviations, percentages, and rank ordering.

Completion of Phase One, the Function Analysis, provided the following eight reports:

Naval Flight Officer Function Analysis. Volume I.
P-3C Navigation Communications Officer (NAVCOM).

Naval Flight Officer Function Analysis. Volume II.
P-3B Tactical Coordinator Officer (TACCO).

Naval Flight Officer Function Analysis. Volume III.
P-3C Tactical Coordinator Officer (TACCO).

Naval Flight Officer Function Analysis. Volume IV.
RA-5C Reconnaissance Attach Navigator Officer (RAN).

Naval Flight Officer Function Analysis. Volume V.
A-6 Bombardier Navigator Officer (B/N).

Naval Flight Officer Function Analysis. Volume VI.
EA-6 Electronic Counter Measures Officer (ECMO).

Naval Flight Officer Function Analysis. Volume VII.
E-2B Communications Information Coordinator (CICO).

Naval Flight Officer Function Analysis. Volume VIII.
F-4 Radar Intercept Officer (RIO).

Phase Two, the Commonality Analysis, is an attempt to make a cross-comparison as to which NFO communities performed which tasks and to what extent. The first attempt at a commonality analysis was made with the assumption that each FDI developed during Phase I contained all the tasks performed by each respective NFO community and that any task(s) shared by two or more NFO communities would be reflected in their individual FDIs. However, because the individual FDIs were developed independently, not all similar tasks were defined exactly the same for all positions, and some tasks were omitted for some positions. Thus, the analysis of commonality or uniqueness of tasks across all NFO positions required supplementary data. A compendium Position Commonality Inventory (PCI) was developed consisting of all the roles, duties, and tasks, reflected in the eight individual FDIs. In addition, several tasks that had been written in by the NFOs reviewing the FDIs were included in the PCI. Copies of this encompassing inventory were then sent to all the NFO operational squadrons for review and completion.

METHOD

On each page of the PCI and alongside the tasks were eight columns each headed by an NFO community. Prior to sending copies of the PCI to the operational squadrons determinations were made as to which task statements had already been identified as being performed by certain NFO communities. These determinations were based upon the FDI data from Phase One. Where a task statement had been so identified an X was placed alongside it and under the appropriate NFO community heading(s). The NFO reviewing the PCI was instructed to simply skip over those tasks which already had an X placed under his NFO community heading and go on to the next task. If there was no X and he thought his NFO community did in fact conceivably perform that particular task then he was to place a check (✓) in that space; otherwise, he was to leave it blank. The complete set of instructions can be found in Appendix A.

Two copies of the PCI were mailed to each of the operational squadrons being sampled. It was requested of each squadron commanding officer that two NFOs be assigned the task of completing the PCI and that they be returned within seven days of receipt. Of the 74 squadrons sampled, 53 squadrons returned completed inventories for a highly satisfactory 71% return rate. A complete list of the squadrons sampled is shown in Table I.

Table I
Operational Squadrons Sampled

P-3C NAVCOM	P-3B TACCO	P-3C TACCO	RA-5C RAN	A-6 B/N	EA-6 ECMO	E-2B CICO	F-4 RIO
VP 24	VP 4	VP 24	RVAH 1	VA 42	VAQ 131	VAW 121	VF 11
VP 49	VP 1	VP 49	RVAH 5	VA 35	VAQ 131	VAW 122	VF 14
VP 56	VP 26	VP 56	RVAH 6	VA 65	VAQ 134	VAW 123	VF 31
VP 47	VP 23	VP 47	RVAH 7	VA 75		VAW 124	VF 32
VP 48	VP 11	VP 48	RVAH 13	VA 85		VAW 125	VF 33
VP 50	VP 10	VP 50	RVAH 9	VA 128		VAW 126	VF 41
	VP 9		RVAH 11	VA 115		VAW 113	VF 74
	VP 19		RVAH 12	VA 145		VAW 114	VF 81
	VP 22		RVAH 14	VA 196		VAW 115	VF 102
	VP 40			VA 34		VAW 116	VF 103
	VP 56			VA 176			VF 21
	VP 48			VA 165			VF 51
							VF 92
							VF 96
							VF 111
							VF 114
							VF 142
							VF 143
							VF 151
							VF 154
							VF 161
							VF 213

Each task contained in the PCI was analyzed in terms of the percentage of sampled NFOs performing the task in a particular community. Where the task existed in the original FDI this percentage was already available. Where the percentage was derived from the PCI it was computed by dividing the number of NFOs placing a check (✓) alongside the task by the number of NFOs returning completed inventories. Each of the NFO communities were, of course, considered separately.

The number of completed and returned PCIs for each NFO community was as follows:

- | | |
|--------------------|------------------|
| 1. P-3C NAVCOM = 3 | 5. A-6 B/N = 25 |
| 2. P-3B TACCO = 16 | 6. EA-6 ECMO = 4 |
| 3. P-3C TACCO = 8 | 7. E-2 CICO = 14 |
| 4. RA-5C RAN = 16 | 8. F-4 RIO = 33 |

RESULTS

TASK EVALUATIONS

The task statements and the percentage of each of community performing the tasks are presented in Tables II through XXXVI. The tables are organized according to Role/Duty categories and follow the exact sequence as contained in the PCI. The percentage values derived from the compendium or PCI data are within parentheses while those based upon the FDI data of Phase One have no parentheses. An essential difference between the two phases is that the PCI data are based on smaller samples of NFO reviewers.

RECOMMENDATIONS

This report, along with the eight volumes from the Function Analysis, should be useful to educational specialists or other personnel responsible for evaluating, revising or developing NFO training programs. Each task or behavioral objective reflected in the operational data aids in the determination of the learning objectives in the training program. Thus, one should consider carefully the following possibilities:

- (1) A reduction or elimination of training for a task performed by a small percentage of operators and which has a low criticality value.
- (2) An increase in training for a task performed by a large percentage of operators and which has a high criticality value.

- (3) Introduction of learning objectives in the training program for tasks being performed in the fleet that were not previously considered.
- (4) An earlier introduction in the training program of learning objectives for tasks being performed by several NFO communities. The extent to which this is practical will be dependent upon the degree to which the task is system bound. However, when it is practical the results will usually be an increase in cost effectiveness.

The most immediate use of these data would probably be that of allowing the RAGs to evaluate their training programs. Any training revisions made at the RAG level should be examined in terms of its impact on undergraduate training. In other words, just as the description of the NFO's operational tasks helps to define what RAG training should consist of, so the demands of RAG training helps in defining the content of undergraduate training.

In addition to the data's usefulness to training they may also provide needed feedback to human engineers concerning the validity of their analysis during development.

The operational feedback reflected in these reports should not be considered as a one-time evaluation, but rather one evaluation in a continuous process of evaluations. The operational scene is a dynamic one requiring a dynamic feedback system. The FDI's and PCI developed during this project provide the basic tools and methodology for conducting a continual analysis of the NFO's operational performance requirements.

Table II

Per Cent of Fleet Performing Voice Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Communicate Using UHF/HF Voice	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
1. Communicate with controlling agencies in emergency situations (including own aircraft emergency, other aircraft emergency, SAR, lost aircraft, and SUBMISS/SUBSUNK) .	60	71	64	93	75	93	94	94
2. Communicate with controlling agencies concerning position, mission, or tactical information.	92	75	90	100	95	74	91	98
3. Communicate with tactical controlling agencies (such as OPCON, home base, carrier, DD, VAW aircraft, other ASW aircraft) concerning own weapon system status and aircraft system failures (KILO Reports) .	87	91	92	93	94	96	100	99
4. Initiate or respond to authentication procedures for friend of foe identification.	95	71	90	93	88	93	91	(73)
5. Monitor incoming voice communications.	95	94	92	95	96	96	100	(70)
6. Establish or terminate voice communications with tactical controlling agencies.	96	77	92	100	94	96	100	(93)
7. Determine from the content of the message the required transmission security (plan or secure) .	95	98	95	84	88	93	97	(60)

Table II

Per Cent of Fleet Performing Voice Communication Tasks

TASK:	ROLE I : Communicator/Coordinator		NFO POSITIONS							
			1	2	3	4	5	6	7	8
DUTY A : Communicate Using UHF/HF Voice			P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
8. Encode/decode message manually in order to have secure voice communication.			100	96	95	52	67	(50)	91	(36)
9. Communicate with the carrier or airport in its control zone under VFR/IFR.						98	99	100	60	98
10. Communicate and receive en route information from air traffic control, GCI, metro, FSS, approach, and departure.				(13)		100	96	100	71	97
11. Use the KY-28 in order to have secure UHF communications.			(100)	(93)	(87)	95	68	87	63	78
12. Monitor Guard in the event of lost communications or emergencies.			(87)	(33)	(50)	97	98	56	86	98
13. Direct another aircraft to lay buoys, deliver weapons, or assume jamming due to aircraft malfunctioning or buoy shortages.			45	53	38		69	89	(21)	
14. Communicate by exchanging SWAP Reports with on-station aircraft or ship.			88	96	95		27	(25)		86

Table II

Per Cent of Fleet Performing Voice Communication Tasks

TASK:	ROLE I : Communicator/Coordinator		NFO POSITIONS							
	1	2	3	4	5	6	7	8		
DUTY A : Communicate Using UHF/HF Voice	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO		
15. Determine best voice mode operation (HF or UHF) based on range of transmission.	93	54	92			96	54			
16. Communicate tactical development to all participating tactical units in order to have effective coordination between units.	72	78	74	54	76	89	91	(30)		
17. Direct flight to visual acquisition of friendly/unfriendly aircraft.					71	67	100	98		
18. (a) Coordinate with ground air controller concerning target priorities and/or weapons to be used.					64	52	(28)	78		
18. (b) Coordinate with CIC or ship air controller concerning target priorities and weapons to be used by participating units.		(20)	(25)		(18)		77	(16)		
19. Coordinate with flight or wingman concerning aircraft coordination, target priorities, release parameters, weapons or jammers to be used.		(13)			72	93		86		
20. Communicate defensive or evasive tactics to chase aircraft or wingman during aerial combat maneuvers.				55	40	52		(96)		

Table II

Per Cent of Fleet Performing Voice Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Communicate Using UHF/HF Voice	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICG	F-4 RIO
TASK:								
21. Communicate with the exercise submarine concerning submarine's track, evaluation of attack, and the analysis of the exercise.	78	97	90				(14)	
22. Direct another aircraft to monitor buoy pattern.	48	68	54				(21)	
23. Determine if voice is better mode of communication than either teletype or data link by considering accuracy, speed, ease, content, security, and range of transmission.	95	79	95				(35)	
24. Communicate directive commentary to the wingman or the pilot/flight during ACM concerning target relative position, target relative movement, fuel state, and wingman position.					80	56		98
25. Direct another aircraft to assume armed reconnaissance in area of known enemy activity.		(13)			24	67	63	(33)
26. Monitor UHF/ADF in the event of lost communications.	(75)	(26)		(100)	(68)	(100)	100	98
27. Communicate with tactical controlling agencies by checking in or checking out.	(62)	(46)	(50)	100	(95)	(75)	(85)	98

Table II

Per Cent of Fleet Performing Voice Communication Tasks

ROLE	I : Communicator/Coordinator	NFO POSITIONS							
		1	2	3	4	5	6	7	8
DUTY	A : Communicate Using UHF/HF Voice	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:									
28. Monitor and supervise communications and other related duties of radio operator.		(37)	94	97	(13)	(13)	(75)	(21)	(13)
29. (a) Communicate directive commentary to the controlled aircraft concerning air-to-air intercept.								94	(13)
29. (b) Communicate directive commentary to the flight during the air-to-air intercept concerning aircraft speed, altitude and heading changes, and target relative position and relative movement.							(25)	(28)	98
30. Communicate directive commentary to the controlled aircraft during skimmer, scrapper.							(25)	94	
31. Communicate directive commentary to the controlled aircraft during a run-in to a surface target.				(31)		(13)	(25)	91	
32. Communicate directive commentary to the flight during air-to-ground weapons delivery concerning altitude, airspeed, dive angle, and flak.						(77)	(25)		81
33. Provide flight with rendezvous information of altitude, speed, heading, closure rate, and relative position.						(63)	(75)	(35)	97

Table II

Per Cent of Fleet Performing Voice Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS							
DUTY	A	: Communicate Using UHF/HF Voice	1	2	3	4	5	6	7	8
	P-3C		P-3B	P-3C	RA-5	A-6	B/N	EA-6	E-2	F-4
	N/C		TACCO	TACCO	RAN			ECMO	CICO	RIO
TASK:										
34. Advise flight concerning flight parameters of fuel state, target energy level, closure rate, target altitude, number of targets, type of threat, and target size in a tactical situation.							(50)		(20)	95
35. Confer with aircraft being controlled on target priorities.							(31)		43	
36. Confer with aircraft being controlled on type weapon to be used.							(27)		97	
37. Authenticate message manually in order to have secure voice communication.			(87)	(66)	(50)	(40)	(45)	63	(71)	(43)
38. Communicate by exchanging intelligence/tactical information with on-station aircraft or ship when own aircraft has arrived on-station.			(87)	(73)	(62)	(13)	(50)	74	(78)	(30)
39. Communicate with global HF stations concerning own transoceanic position reports.			(87)	(40)	(62)			78		
40. Communicate with global HF stations concerning the relay of position reports and/or other pertinent information for other units (ship, shore, air).			(100)	(13)	(75)			63	(28)	

Table II

Per Cent of Fleet Performing Voice Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Communicate Using UHF/HF Voice	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
41. Direct an aircraft to an ECM contact fix or area in order to attain a visual contact.		(40)	(50)	(13)	(22)	59	(42)	
42. Communicate with controlling agencies or EW training ranges in order to ensure maximum crew training and evaluation.				(46)	(50)	100		(50)
43. Advise the wingman of threat emitters.				(33)	(81)	82		(70)
44. Direct another aircraft to delivery weapons due to on-station aircraft having a system malfunction or weapon shortage.					(45)		77	(26)
45. Monitor and supervise voice communications and other related duties of the ACO and flight tech.						(25)	100	
46. Monitor the pilot's communications with the carrier or airport in its control zone under VFR/ IFR conditions (including tower, ground, approach, departure, etc.)	(100)	(60)	(50)	(66)	(86)	(75)	100	(60)
47. Monitor the pilot's communications with air traffic control, GCI, metro, FSS, approach, and departure.	(100)	(73)	(50)	(66)	(90)	(50)	100	(60)

Table II

Per Cent of Fleet Performing Voice Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Communicate Using UHF/HF Voice	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
48. Communicate with other aircraft as a target spotter concerning air-to-ground weapon deliveries.					62			(50)
49. Coordinate and/or control support aircraft during combat reconnaissance mission.				82	(36)	(25)	(50)	(20)
50. Direct the radio operator to transmit particular voice communications to tactical controlling agencies and/or other participating units.		93	(62)		(25)		(14)	
51. Provide flight with information on launched and visually acquired surface-to-air missiles.				(13)	(77)	(75)	(14)	(96)
52. Communicate directive commentary to controlled helos in transit between surface radar zones.							(78)	
53. Monitor and back-up pilot's communication with other units, copy all instructions and information received as a double check.	(75)	(66)	(62)	(60)	(90)	(100)	(64)	(66)
54. Communicate to ground or carrier with pre-arranged signals in event of radio failure and combined emergencies.	(25)			(46)	(72)	(75)	(28)	(63)

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Communicate Using ICS	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
1. Advise pilot and/or TACCO of navigation information.	98	91	87	100	100	85	97	97
2. Advise crew of aircraft status, system effectiveness, and aircraft failures.	90	100	94	100	100	93	100	98
3. Direct a pilot to fly specific headings and/or attitudes based on the tactical situation or objective.	65	98	97	100	98	96	100	(90)
4. Direct a pilot to fly to or about a specific fix or point.	88	100	97	95	98	96	94	(86)
5. Direct and inform crew as to nature, development, and corrective measures taken concerning aircraft cockpit emergencies.	42	96	100	95	98	93	74	(63)
6. Direct pilot to visual acquisition of friendly/unfriendly aircraft and/or submarines and/or surface units.	55	93	94	(46)	96	93	94	99
7. Alert pilot or visual observers in a high target or high emitter probability area.		100	97	86	71	85	91	(70)

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator				NFO POSITIONS							
DUTY B : Communicate Using ICS				1	2	3	4	5	6	7	8
				P-3C	P-3B	P-3C	RA-5	A-6	EA-6	F-2	F-4
				N/C	TACCO	TACCO	RAN	B/N	CMO	CICO	RIO
TASK:											
8. Advise pilot of airborne or ground surface threats and/or pertinent contacts.				(25)	(26)	(50)	95	96	93	94	91
9. Advise pilot of own aircraft damage.				(25)	(40)	(50)	70	63	70	83	55
10. Recommend to the pilot that he fly particular tactical patterns as appropriate to tactical phase and situation.					98	97	(20)	80	100	100	(80)
11. Assist pilot on an approach to aircraft carrier by advising and monitoring his line-up, glide slope, and airspeed.							100	100	89	(14)	98
12. Assist pilot in an emergency situation by reading the proper NATOPS procedures from checklist.							100	96	96	(14)	98
13. Communicate tactical developments and information to pilot and/or crew in order to maintain mission effectiveness and crew teamwork.					(80)	(87)	90	94	(100)	100	97
14. Advise pilot of visual and radar targets.					(46)	(75)	100	99		94	98
15. Advise pilot of fuel and heading for egress.					(13)		100	94	74		81

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator		NFO POSITIONS							
DUTY	B : Communicate Using ICS	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:									
16.	Assist the pilot through a system of challenge and reply statements on checklists (such as start, taxi, takeoff, landing, systems checks, shut-down, etc.)			87	100	100	96		99
17.	Advise pilot of weapon expenditure and effectiveness.		84			96			79
18.	Confer with pilot on type weapon to be used.		86	87		85			88
19.	Confer with the pilot concerning the decision to prosecute or attack a target.		96	90		92			90
20.	Report flight readiness condition, to crew stations or pilot when achieved.		98	100	100	(63)	(50)	94	(43)
21.	Communicate tactical developments and information to crew stations in order to maintain mission effectiveness and crew teamwork.		100	100		(13)	96	97	(13)
22.	Advise pilot of wingman's position in all tactical situations.				(13)	100	85		99

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS							
DUTY	B	: Communicate Using ICS	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:										
23.	Communicate to the pilot an ASR/GCA approach using both radar and TACAN when ground control proves inadequate.					95	94		37	91
24.	Communicate directive commentary to the pilot during ACM concerning target relative position, target relative movement, fuel state, and wingman position.						93	82		98
25.	Confer with pilot concerning target priority.		(13)			97	89			82
26.	Advise pilot of surface contact or fixes.		100	87	97	97	(77)	(25)	(21)	(33)
27.	Direct operator to monitor certain sensors primarily and/or as back-up, in accordance with tactical developments throughout the flight.		95	96			(13)	(50)	97	
28.	Direct SS-3 or Radar Operator to identify coded (SIF/IFF) pulses displayed on the radar.		86	85					89	
29.	Direct crew stations (all stations, including flight stations) concerning all tactical actions to be executed by the crew or by individual stations throughout the flight.		100	100			(13)	(50)	100	

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS							
DUTY	B	: Communicate Using ICS	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:										
30. Direct sensor operators on appropriate watch rotations, monitoring cycles, and work-rest cycles during the flight.				100	100			(25)	65	
31. Advise pilot and TACCO of communication information.			100	91	87		(18)		(21)	(13)
32. Recommend to the pilot the navigation compass heading mode (free, slave, etc.) that he should select that is most accurate at the moment.			83	87	74	(53)	(68)		(57)	(16)
33. Direct, recommend, and inform the pilot/crew concerning tactical evaluations, decisions, and actions.				(93)	(75)	86	95	100	(64)	(56)
34. Communicate with the pilot or sensor operators concerning analysis, classification, and evaluation of either acoustic or ECM contacts.				100	95	90	(40)	(50)	(14)	(40)
35. Direct crew throughout all tactical phases concerning tactical evolutions, crew tasks, and tactical decisions.				100	100	(13)	(18)	(50)	97	(16)

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS											
1	2	3	4	5	6	7	8							
P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO							
TASK:														
36. Provide pilot with rendezvous information of altitude, speed, heading, closure rate, and relative position.								(45)	77	99				
37. Advise pilot of ECM encountered.								(60)	(62)	(33)	95	(50)	(21)	96
38. Communicate directive commentary to the pilot during air-to-ground weapons delivery (including altitude, airspeed, dive angle, and flak).											100			98
39. Advise pilot of visual contact with rendezvous aircraft.								(37)	(37)	(46)	100	100		(93)
40. Direct a pilot to fly specific altitudes based on the tactical situation.								98	97	(60)	(72)	(100)	(57)	(73)
41. Direct the pilot to fly to a buoy using a visual reference such as the OTPI, buoy dye marker, or smoke.								99	98					
42. Direct sensor operators to monitor certain sensors when tactically converting from one sensor equipment to another in order to refine fix.								96	95					

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator		NFO POSITIONS							
DUTY B : Communicate Using ICS		1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
43. Request certain sensor operators to monitor specific sensor or buoy and request other sensor operators to standby visually or monitor other sensors when in localization.		96	95						
44. Request operators (JEZ, JUL or SS1, SS2) to monitor the buoy closest to the attack for evaluation of the attack.		100	95						
45. Request SS-3 or Radar Operator to activate the radar for a minimum number of scans in order to update target in the operating area.		98	97					(21)	
46. Request that sensor operators give vectors and updates to a target during a run-in on a line of bearing or a fix.		99	92						
47. Request from operators (JEZ, JUL, or SS1, SS2) the number of buoys that hold the same contact.		100	97						
48. Direct operators (JEX, JUL, or SS1, SS2) when to monitor visually and aurally certain buoys.		99	92						

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS							
DUTY B : Communicate Using ICS			1	2	3	4	5	6	7	8
			P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
			N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:										
49. Direct NAVCOM, navigator, or radio operator on matters concerning communication responsibilities, and/or on matters concerning navigation responsibilities.				94	97				(35)	
50. Advise pilot of ECM jamming encountered on radar scope.				(26)	(25)	(40)	(81)		(28)	96
51. Acknowledge all contacts that are placed in the system by the sensor operators.				(73)	(87)				91	
52. Direct a pilot to fly specific altitudes and headings based on the tactical situation.				(93)	(100)	(53)	(59)	(75)	100	(73)
53. Communication directive commentary to the pilot during air refueling concerning relative position to the refueling nozzle.							(45)	(50)		98
54. Communicate directive commentary to the pilot during the air-to-air intercept concerning aircraft speed, altitude and heading changes, and target relative position and relative movement.							(13)		(14)	99

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE	I	:	Communicator/Coordinator	NFO POSITIONS							
				1	2	3	4	5	6	7	8
DUTY	B	:	Communicate Using ICS	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
				N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:											
55.	Advise pilot concerning flight parameters of fuel state, target, energy level, closure rate, target altitude, number of targets, type of threat, and target size in a tactical situation.							(40)			96
56.	Communicate with the pilot concerning analysis, classification, and evaluation of either ECM or radar contacts.				(73)	(50)	(53)	99	(75)	(28)	(76)
57.	Confer with crew concerning threat priority.				(20)	(12)	(20)	(18)	96	(35)	(20)
58.	Confer with crew on type jamming to be employed.								100	(14)	
59.	Confer with crew concerning on-board-surveillance system modes of operation.				(66)				100	(28)	
60.	Advise crew of potential jamming effectiveness based on power readings.								100		
61.	Advise crew of threat emitters.				(33)	(25)	(20)	(31)	96		(16)

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Communicate Using ICS	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
62. Communicate with the crew concerning analysis, classification, and evaluation of surveillance system contacts.		(66)	(50)		(13)	100	(57)	
63. Communicate to the crew bands to be monitored, monitoring cycles, work-rest cycles, and other information concerned with crew teamwork.		(86)	(37)			93		
64. Confer with the pilot and crew concerning flight readiness (including aircraft status, system effectiveness, etc.) in order to determine degree of mission readiness/effectiveness and/or launch GO/NO GO.	(25)	(100)	(87)	(60)	(81)	93	(85)	(46)
65. Communicate pertinent flight information, intelligence data, and tactical information into the system recording device in order to ensure a complete and accurate debrief.		(73)	(62)	(13)	(45)	22		
66. Communicate to the pilot concerning a radar intercept of a target (airborne or surface).		(53)	(62)	(46)	(36)		91	(76)
67. Direct a pilot to fly specific altitudes based on the reconnaissance objectives.		(66)	(37)	100	(31)	(50)	(21)	(33)

Table III

Per Cent of Fleet Performing ICS Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Communicate Using ICS	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
68. Communicate directive commentary to the pilot during reconnaissance run including altitude, airspeed, heading, and flak.		(13)		100	(22)			(53)
69. Advise pilot of remaining exposures and effectiveness of photo run.		(20)		97	(27)			
70. Advise pilot of visual contact with chase aircraft.				61	(31)	(50)		(40)
71. Direct the Radio Operator to transmit particular voice or teletype communications to tactical controlling agencies and/or other participating units.		93	(62)			(25)	(14)	
72. Direct pilot to visual acquisition of initial point of reconnaissance run.		(13)		97	(50)			(30)
73. Communicate to pilot as to when to use displayed information and when to disregard.		(33)	(75)	(40)	(63)	(50)	(42)	(20)
74. Act as a sounding board for pilot decisions involving tactics, maneuvers and emergency procedures.		(40)	(50)	(53)	(72)	(75)	(28)	(73)

Table IV

Per Cent of Fleet Performing IFF/SIF Interrogation Equipment Tasks

ROLE	I	Communicator/Coordinator	NFO POSITIONS							
			1	2	3	4	5	6	7	8
DUTY	C	Communicate Using IFF/SIF Interrogation Equipment	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:										
1. Operate the IFF/SIF system installed in the aircraft by selecting appropriate mode and code.					(13)	(25)	100	100	(21)	27
2. Interpret IFF/SIF identification information from other aircraft and surface ships.									100	68
3. Monitor IFF/SIF interrogation equipment in order to identify unknown targets (ship or aircraft).									97	73
4. Communicate to ground or carrier with pre-arranged signals in the event of radio failure.						(73)	(40)	(100)		(40)
5. Operate the IFF/SIF system in hostile air threat environment to sanitize aircraft when returning to ship.						(73)	(63)	(75)	(42)	
6. Communicate to controlling agency (CVA) during NORAD vis IFF/SIF combination.						(80)	(54)	(75)		(20)

Table V

Per Cent of Fleet Performing Visual Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS							
	1	2	3	4	5	6	7	8		
DUTY D : Communicate Using Visual Communication	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4		
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO		
TASK:										
1. Communicate with other aircraft via visual head, hand, or light signals.				45	100	100		98		
2. Communicate with carrier flight deck personnel or tower via visual, head, hand, or light signals.				52	93	89		92		
3. Backup pilot on LSO visual hand or light signals while on glide slope.					89	89		39		
4. Communicate with air station ground crew or tower via visual head, hand, or light signals.					(63)	(75)		77		

Table VI

Per Cent of Fleet Performing Communication Tasks Using Pilot's
Display and/or Steering Command Signals

ROLE I : Communicator/Coordinator			INFO POSITIONS							
DUTY	E	: Communicate Using Pilot's Display and/or Steering Command Signals	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:			100	83	97	(100)	99	(25)	(21)	(20)
1. Direct the pilot to a specific point or area of interest via fly-to points/steering command vectors.				84	95		100			
2. Display a weapon fly-to point/steering command vectors for weapon release of desired weapon.				83	97	(46)	100			
3. Display fly-to points to single or multiple fixes from any sensor or system.				88	97					
4. Display an orbital fly-to point on the GTP-4 in order to maintain a circular flight path around a specified point.				93	97		(31)	(25)		
5. Recenter the pilot's display on an arbitrary point (using either the aircraft, a target, or a position of known coordinates as reference in the center).				73	97	(13)	(27)	(25)		
6. Remove data from the pilot's tactical display.				90	97					
7. Display fly-to points for monitoring or laying a buoy search pattern or active buoy pattern.										

Table VI

Per Cent of Fleet Performing Communication Tasks Using Pilot's
Display and/or Steering Command Signals

TASK:	ROLE 1 : Communicator/Coordinator		NFO POSITIONS							
	DUTY	E	1	2	3	4	5	6	7	8
	Communicate Using Pilot's Display and/or Steering Command Signals		P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
8. Display aircraft heading instructions at arrival over a desired fly-to point.				(53)	92	(66)	100	(25)		
9. Display lines of position or bearing lines from sensors that provide bearings (such as ECM, Radar, DIFAR).				(46)	95		77			
10. Display target or own aircraft course and speed vector.				(13)	74		(31)	(25)	(14)	
11. Request program-derived steering commands be sent to the FDI in order to maintain a circular flight path or a track to a specified fly-to point.					92		(18)			
12. Determine the display of steering commands to a check point or fix to return home under emergency conditions.						100	(63)			
13. Provide the pilot with a radar display on the PHD.										98

Table VII

Per Cent of Fleet Performing Data Link Communication Tasks

ROLE I : Communicator/Coordinator		NFO POSITIONS							
DUTY F : Communicate Using Data Link	1	2	3	4	5	6	7	8	
P-3C	P-3B	P-3C	P-3C	RA-5	A-6	EA-6	E-2	F-4	
N/C	TACCO	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:									
1. Establish or terminate voice communications with tactical controlling agencies.	45		33	(33)	(27)	(25)	97	(23)	
2. Communicate by exchanging SWAP Reports with on-station aircraft or ship.	60	(33)	44				83		
3. Exchange data link reference points, identify and location of net control, identity and location of participating units, and other parametric information with the system.	50		41				91		
4. Determine best data link mode of operation (HF or UHF) based on range of transmission.	70		46			(25)			
5. Determine if data link is a better mode of communication than either teletype or voice by considering accuracy, speed, ease, content, security, and range of transmission.	55		36				(42)		
6. Determine from the content of the message the required transmission security (plain or secure).	45	(20)	33	(20)	(13)	(25)	(57)	(13)	
7. Monitor TWX receive for tactical information being recieved.	55		36						

Table VII

Per Cent of Fleet Performing Data Link Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS							
DUTY	F	:	1	2	3	4	5	6	7	8
		:	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		:	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:										
8. Communicate with tactical controlling agencies (such as OPGON, home base, carrier, DD, VAW aircraft, other ASW aircraft) concerning own weapon system status and aircraft system failures (KILO Reports) .			40	(20)	31	(13)	(13)	(25)	(57)	(23)
9. Communicate with controlling agencies concerning own position reports.			38	(13)	70	(20)	(22)	(25)	(78)	(30)
10. Communicate with tactical controlling agencies concerning the threat environment, tactical information, important mission events, and mission success through Contact Reports and Situation Amplifying Reports.			35	(20)	74	(20)	(13)	(25)	(42)	(16)
11. Communicate with other participating ASW units by exchanging tactical information.			50	(13)	41				(21)	
12. Communicate with controlling agencies in emergency situations (including own aircraft emergency, other aircraft emergency, SAR, lost aircraft, and SUBMISS/SUBSUNK) .			33	(13)	26	(20)	(18)	(25)	(50)	(13)

Table VII

Per Cent of Fleet Performing Data Link Communication Tasks

ROLE I : Communicator/Coordinator			NFO POSITIONS								
DUTY	F	:	Communicate Using Data Link	1	2	3	4	5	6	7	8
	P-3C			P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C			TACCO	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:											
13. Communicate tactical developments to all participating ASW units concerning submarine prosecution in order to have effective coordination between units.				40	(20)	28				(14)	
14. Direct or recommend tactical responsibilities and evolutions to other participating units in order to maintain effective coordination between units.				28	(13)	20				(42)	
15. Communicate with the exercise submarine concerning submarine's track, evaluation of attack, and analysis of the exercise (ABC Reports).				23	(26)	18					
16. Communicate with tactical controlling agencies by transmitting acoustic (AQA-7) grams for analysis.				20		13					
17. Transfer received data to an active data storage area in the system and/or magnetic tape.				40		23					
18. Monitor and supervise data link communications and other related duties of NAVCOM operator.						44				97	

Table VII

Per Cent of Fleet Performing Data Link Communication Tasks

ROLE I : Communicator/Coordinator	NFO POSITIONS							
DUTY F : Communicate Using Data Link	1	2	3	4	5	6	7	8
	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	EGMO	CICO	RIO
TASK:								
19. Receive from MTDS tactical information.							80	17
20. Receive from ATDS target display on radar scope.							77	52
21. Receive from NTDS tactical information.			(37)				97	50
22. Receive from ATDS target information.							83	(40)
23. Determine appropriate data link mode of operation depending upon EMCON and equipment malfunctions.	(23)		(50)				94	(23)
24. Receive from ATDS command heading information.								56
25. Receive from NTDS landing control information.								55

Table VIII

Per Cent of Fleet Performing Teletype Communication Task

ROLE I : Communicator/Coordinator			NFO POSITIONS							
DUTY G : Communicate Using Teletype			1	2	3	4	5	6	7	8
			P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
			N/C	TACCO	TACCO	RAN	B/N	ECMO	GICO	RJO
TASK:										
1. Determine if teletype is best mode of communication by considering accuracy, speed, ease, content, security, and range of transmission.			75	77	89					
2. Determine from the content of the message the required transmission security (plain or secure) .			90	90	84	(20)		(25)		
3. Encode/decode message manually in order to have secure teletype communication.			48	68	58			(25)		
4. Direct or recommend tactical responsibilities and specific type tactics to other participating units in order to maintain effective coordination between units.			45	57	33				(14)	
5. Communicate (either self or via radio operator) with tactical controlling agencies (such as OPCON, home base, carrier, DD, VAW aircraft, other ASW aircraft) concerning weapon system status and aircraft system failures (KILO Reports) .			85	89	82	(20)	(13)	(25)		
6. Initiate or respond to authentication procedures for friend or foe identification.			60	55	72	(13)	(18)	(25)		

Table VIII

Per Cent of Fleet Performing Teletype Communication Task

ROLE I : Communicator/Coordinator		NFO POSITIONS								
DUTY G : Communicate Using Teletype		1	2	3	4	5	6	7	8	
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4	
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:										
7. Determine message classification (Routine, Flash, etc.) by considering message content, security, and urgency.		90	94	89			(25)			
8. Construct and edit messages.		93	98	82			(25)			
9. (a) Communicate by exchanging SWAP Reports with on-station aircraft or ship.		70	(40)	85				(14)		
9. (b) Direct the radio operator to communicate by exchanging SWAP Reports with on-station aircraft of ship.			72	(75)						
10. (a) Communicate with controlling agencies in emergency situations (including own aircraft emergency, other aircraft emergency, SAR, lost aircraft, and SUBMISS/USBSUNK).		55	(26)	51	(13)		(25)	(14)		
10. (b) Direct the radio operator to communicate with controlling agencies in emergency situations (including own aircraft emergency, other aircraft emergency, SAR, lost aircraft, and SUBMISS/SUBSUNK).			76	(75)						

Table VIII

Per Cent of Fleet Performing Teletype Communication Task

ROLE I : Communicator/Coordinator			NFO POSITIONS							
DUTY G : Communicate Using Teletype			1	2	3	4	5	6	7	8
			P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
			N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:										
11. Communicate (self or via radio operator) with the exercise submarine concerning a submarine's track, evaluation of attack, and analysis of the exercise (ABC Reports) .			35	49	44					
12. Communicate with tactical controlling agencies concerning the threat environment, tactical information, important mission events, and mission success through Contact Reports and Situation Amplifying Reports.			88	(33)	87	(13)		(25)	(14)	
13. Communicate with other participating ASW units by exchanging tactical information .			66	(53)	79					
14. Communicate tactical developments to all participating ASW units concerning submarine prosecution in order to have effective coordination between units .			56	(33)	59					
15. Type and send the message when in the manual mode.			93		85					
16. Monitor selected frequency, tableau , and printer for tactical information being transmitted or received .			100	(13)	82					

Per Cent of Fleet Performing Teletype Communication Task

ROLE I : Communicator/Coordinator		NFO POSITIONS							
		1	2	3	4	5	6	7	8
DUTY	G : Communicate Using Teletype	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:									
17.	Communicate with tactical controlling agencies concerning own position reports.	83		82	(13)		(25)		
18.	Establish or terminate voice communications with tactical controlling agencies.	88	(20)	82	(13)				
19.	Monitor and supervise teletype communications and other related duties of radio operator or NAV-COM.		91	90					
20.	Ensure radio operator has proper cryptographic material for mission.	(25)	(86)	(87)					

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavibrator System

ROLE II : Navigator		NFO POSITIONS							
DUTY A : Navigate Using Inertial/Doppler or Inertial Autonavibrator System	1	2	3	4	5	6	7	8	
	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4	
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:									
1. Determine at altitude the accuracy of compass, altitude, and airspeed indicators.	95	94	84	100	99	74	37		
2. Verify system position accuracy with other navigation aids.	100	95	(25)	100	95	78	97	(20)	
3. Recommend to the pilot the heading (slave, free, compass, inertial) function that is most accurate or applicable for overland or overwater flights.	80	82	79	93	99	48	(42)		
4. Update the magnetic variation as required during compass mode selection.	83	84	82	81	99	93	(42)	(13)	
5. Determine proper navigation mode (inertial or doppler) by considering flight mission and equipment status.	98	92	97	100	100	85	(50)		
6. Monitor and compare all inertial and doppler indications and readouts during the flight for accurate track, ground speed, and drift angle.	97	92	(25)	98	100	89	(14)		
7. Enter lat/long of takeoff, operating area, destination, and alternate positions into the NAV computer.	98	(13)	87	(73)	99	93	66	(26)	

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonav System

ROLE II : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Navigate Using Inertial/Doppler or Inertial Autonav System	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
8. Enter or update flight-plan check-points for intended route of travel.	100		89	100	94	93	(35)	(20)
9. Ensure the latitude counter is updated during slave or free mode selection.	90	84			89	63		
10. Display course, distance, and time of arrival to inserted positions and fly-to points.	88	76	92		99	96		
11. Display range and bearing of a point from own aircraft.	63	89	97	98	(68)	(25)	100	(16)
12. Read latitude and longitude of any point.	63	(40)	97	(73)	100	96	100	(13)
13. Read or enter lat/long positions, of any designated point or lat/long positions, course, altitude, and/or speed data of any single known target of interest located within mission area.		(13)	97		90	87	94	
14. Navigate point-to-point.	(100)	(66)		98	100	85	43	83
15. Monitor check points or fly-to points.	98	(53)	89	(60)		96	80	

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavavigator System

ROLE II : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Navigate Using Inertial/Doppler or Inertial Autonavavigator System	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
16. Determine type of navigation to be used by considering flight mission requirements and mission objectives.	67	(66)	97	(73)	98	96	(28)	(16)
17. Update the computer using other NAV aids.	95	90	87	100	(50)	(25)	(57)	(20)
18. Update the doppler position, and/or the inertial readouts with a fix derived from the most available fixing aid.	85	74	82	(66)	95		(50)	
19. Perform inflight alignment procedures when inertial control panel indicates system fail.	93	53	82		98			
20. Recall important navigation log items and coordinates that occurred throughout the flight from the system.	85	(13)	76	(40)	89	67		
21. Destroy displayed navigation entries, as necessary.	90		84	(20)	88	(50)	63	
22. Initiate a continuously updated target position which is estimated from target's course and speed.		89	100	(20)	71		89	
23. Compare the computed winds with those from the hand-held computer.	(75)	(66)		72	67	59	49	

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavicator System

ROLE II : Navigator		NFO POSITIONS							
DUTY A	: Navigate Using Inertial/Doppler or Inertial Autonavicator System	1	2	3	4	5	6	7	8
		P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:									
24.	Utilize computer to update bingo information.	(25)	(20)		90	85	78	(14)	73
25.	Calculate winds using computer or hand com- puter.	(75)	(66)		73	98	63		66
26.	(a) Display an intercept fly-to point using the target's predicted position.		82	100		96			
26.	(b) Display an intercept fix for own aircraft or controlled aircraft by using the target's predicted position.			(50)					57
27.	(a) Display a weapon fly-to point for weapons/ stores release.		86	100		86			
27.	(b) Display the position for weapon release by the controlled aircraft.								40
28.	(a) Display a target's fix from incoming data from the sensors.		92	100	(20)	83			
28.	(b) Display a target's fix from incoming data from other participating units.			(37)					94

Table IX
Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavicator System

ROLE II : Navigator		NFO POSITIONS							
DUTY	A : Navigate Using Inertial/Doppler or Inertial Autonavicator System	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:									
29.	Align inertials while airborne, as necessary.	93	41	82	(90)				
30.	Insert fly-to points to designated datum and intended buoy positions in a tactical pattern.		83	97	(13)			28	
31.	Reposition own aircraft at a desired position on the display.		88	97				71	
32.	Display or plot position, heading, and distance to bingo field, operating area, or rendezvous point.	(62)	(33)	(62)	(40)	99	96	(35)	84
33.	Compare the doppler readouts and the raw inertial readouts with the computer derived inertial readouts.	100		89		87		(14)	
34.	Utilize computer as backup for instrument approach, departure, and holding.				100	98	(75)		75
35.	Determine which inertial (1 or 2) is to be used as the primary DR mode.	100		89	(13)		(25)		
36.	Initiate or modify a range circle of changing radius about a datum.		75	100					

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavibrator System

ROLE II : Navigator		NFO POSITIONS								
DUTY A : Navigate Using Inertial/Doppler or Inertial Autonavibrator System		1	2	3	4	5	6	7	8	
		P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO	
TASK:										
37. Display fly-to points for monitoring or laying a buoy pattern.			89	100						
38. Display fly-to points to single or multiple fixes from acoustic or non-acoustic sensors.			88	92						
39. Display buoys dropped by another aircraft.			65	100						
40. Reposition buoy or smoke at own aircraft position.			90	100						
41. Display an orbital fly-to point to be coincident with desired circular flight path about a specified point.			72	97						
42. Fix designate an intersection of bearing lines, lines of position, or conics.			85	97						
43. Monitor and supervise navigation duties and other related navigation responsibilities (such as TACAN, Celestial, Radar, etc.) of NAV Operator.			98	95	(20)	(18)				
44. Align system in accordance with preflight procedures.		(87)	(86)		100	99				

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavibrator System

DUTY A : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
45. Plot own position using inertial autonavibrator, navigation computer, or radar.	(50)	(40)	(25)	98	(68)		(35)	95
46. Enter flight plan checkpoints for intended route of travel.	(87)		(62)	(86)	100	92	(42)	(13)
47. Enter altitude of takeoff position into the computer.	(75)		(25)	(40)	100	93	(28)	
48. Rescale the ASA-16 or MPD to accommodate flight mission, tactical pattern, or operating area.		100	95					
49. Maintain a DRT plot of the tactical area by using inertial/doppler information.	(87)	94			(13)			
50. Maintain an ASA-16 display of aircraft track by using inertial/doppler information.		91						
51. Determine and display the optimum buoy positions with expendable fly-to points to detect hyperbolic changes.			89					
52. Store lat/long of present position into computer.	(50)			100	(63)	(75)	(50)	(16)

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavigator System

ROLE II : Navigator		NFO POSITIONS							
DUTY A :	Navigator Using Inertial/Doppler or Inertial Autonavigator System	1	2	3	4	5	6	7	8
		P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:									
53.	Control steering signal to selected check-points.				95	(45)	(50)		
54.	Update the autonavigator using radar cursors.				100	(59)		(21)	
55.	Store new target coordinates as needed.	(37)		(25)	100	(36)	(75)	(21)	
56.	Monitor checkpoints or fly-to points on the NAV Flight Plan Tableau which represent the intended route of travel.	(87)		(62)		96	(25)		
57.	Enter course and speed of carrier into the computer.				(53)	(54)	59	(14)	
58.	Update/modify displayed navigation entries, as necessary.	(75)			(40)	(54)	85	(50)	
59.	Insert the location of known emitter platforms.			(37)		(27)	100	(28)	
60.	Provide radar information to the pilot for inertial/doppler position update.					(36)		91	
61.	Modify the radius of a range circle.		(26)	(62)					43

Table IX

Per Cent of Fleet Performing Navigation Tasks Using Inertial/Doppler or Inertial Autonavigator System

ROLE II : Navigator		NFO POSITIONS							
DUTY A : Navigate Using Inertial/Doppler or Inertial Autonavigator System	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO	
TASK:									
62. Plot position of way points using inertial system.	(25)			(26)	(18)		77		
63. Plot target position, vector , and distance using navigation computer .	(25)			(13)	(50)		(21)	85	
64. Utilize navigation computer as backup to all TACAN functions.	(37)			(66)	(63)	(75)		94	
65. Plot weapon drop position by utilizing navigation computer .		(20)	(25)		(59)			40	

Table X

Per Cent of Fleet Performing Navigation Tasks Using TACAN

ROLE II : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Navigate Using TACAN	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
1. Update/monitor the inertial autonavigator using TACAN information.	97	79	87	98	96	85	63	
2. Crosscheck TACAN in order to assess accuracy and reliability of other navigation equipment.	(87)	(66)		98	99	93	80	97
3. Compute GS using TACAN.	(37)	(53)		95	100	82		98
4. Monitor and utilize TACAN as a backup for GCA/CCA approaches.	(37)	(13)		95	99	96		99
5. Monitor TACAN and advise pilot during TACAN approach, departure, and while holding.		(20)		95	96	100		97
6. Monitor the course, bearing and station frequency selection made by the pilot.				98	100	96		(53)
7. Using TACAN fix, update standby/NAV or inertial system or DR navigation computer.	(87)	(46)		95	(81)	(25)	(42)	95
8. Insert or update TACAN fly-to points on the NAV Flight Plan Tableau or CCI.	(37)				87	89		
9. Use a TACAN fix for a weapon drop.		(13)			51			57

Table X

Per Cent of Fleet Performing Navigation Tasks Using TACAN

ROLE II : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Navigate Using TACAN	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
10. Calculate correction for wind drift using TACAN.		(20)		(40)	71	36		(33)
11. Navigate to the from VORTAC using TACAN.		(20)			(77)	(75)		(70)
12. Compare TACAN heading to other navigation sources.	(75)	(53)		98	(72)	(100)	(21)	(86)
13. Monitor TACAN approach by interpreting information from approach plate.				(93)	(72)	100		(90)
14. Using TACAN, perform radial tracking and interception.				(40)	(63)	(50)		96
15. Use air-to-air TACAN for location or position of wingman.				(60)	(50)			71
16. Use TACAN to obtain fix for DR.	(87)	(53)		(93)	(72)	(50)	(14)	(76)
17. Use TACAN to locate other units (CVAs, A/C, etc.)	(37)	(26)		(93)	(72)	(75)	(35)	(83)

Table XI

Per Cent of Fleet Performing Navigation Tasks Using ADF or UHF/ADF

ROLE II : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY C : Navigate Using ADF or UHF/ADF	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
1. Locate VHF voice jammers using UHF/ADF or ADF.	23	36	32	41	19	44	51	29
2. Use UHF/ADF to acquire relative position information needed to effect rendezvous.	33	70	78	80	75	59	51	77
3. Use UHF/ADF with other aircraft or surface ships in case of lost communications or emergencies.	30	39	32	75	65	59	63	81
4. Use UHF/ADF to acquire and locate downed air-crewman using survival radio.			(25)	50	32	52	60	44
5. Use UHF/ADF cuts to acquire other participating units during tactical mission.	33	71	68	(66)	(63)	(50)	40	(73)
6. Plot own position using ADF information.	63	77	59	(73)	(50)	(50)		62
7. Update inertial/doppler position of aircraft with respect to ADF information.	45	27	44	(46)	(31)			
8. Compare ADF heading to other navigation sources.	(75)	(33)		98	75	56		(60)
9. Use UHF/ADF cuts in order to acquire an air controller.		(20)		(13)	40	41		48

Table XI

Per Cent of Fleet Performing Navigation Tasks Using ADF or UHF/ADF

ROLE	II : Navigator	NFO POSITIONS							
		1	2	3	4	5	6	7	8
DUTY	C : Navigate Using ADF or UHF/ADF	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
10.	Navigate point-to-point using ADF.	(37)	(26)		61	(45)	(50)		41
11.	Crosscheck ADF in order to assess accuracy and reliability of other navigation equipment.	(50)	(33)		93	(59)	(50)	(14)	82
12.	Use UHF/ADF cuts in order to acquire an aircraft that has declared an emergency.				(46)	(63)	(75)	54	57
13.	Monitor ADF and advise pilot during approach, departure, and holding		(13)		84	(63)	(50)		71
14.	Use UHF/ADF to check for 40° TACAN lock-off.		(20)		(86)	(68)	(100)		(80)

Table XII

Per Cent of Fleet Performing Navigation Tasks Using Radar

ROLE II : Navigator		NFO POSITIONS							
DUTY	D : Navigate Using Radar	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1.	Plot own position using radar information.	93	94	81	100	100		94	97
2.	Navigate point-to-point using radar information.	65	89	66	100	100		80	83
3.	Calculate GS and winds using radar information.	48	78	54	86	87		51	57
4.	Locate severe weather and advise pilot of appropriate avoidance route.		92	76	100	61			96
5.	Determine scan mode of operation when radar mapping.		45	41	100	88		83	81
6.	Use radar to check own position for positive radar contact by ground controller or ship/shore air controller.		42	41	100	93		86	61
7.	Give the pilot a GCA or ASR approach using radar and TACAN when ground control proves inadequate.		27	27	95	100		23	77
8.	Distinguish prominent inland features using radar.		87	86	100	100		(28)	87

Table XII

Per Cent of Fleet Performing Navigation Tasks Using Radar

ROLE II : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY D : Navigate Using Radar	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
9. Monitor radar and advise pilot during departure, approach, and holding, in order to maintain aircraft separation.		62	54	100	99		(21)	94
10. Utilize radar as backup for instrument approaches.		38	38	100	95			93
11. Acquire relative position information from another aircraft using radar information.		60	68		(22)		71	(70)
12. Monitor radar check-points in order to provide a visual orientation as a back-up for system navigation.	(25)	(13)	(37)	100	100		86	(70)
13. Cross-check radar in order to assess accuracy and reliability of other navigation equipment.	(25)	(46)	(50)	100	100		89	(76)
14. (a) Use radar for weapon drops.		(26)			99			33
14. (b) Use radar in order to air control another aircraft to a weapon drop.					(13)		83	(10)
15. Monitor Radar Operator or SS-3 while he is radar navigating.		98	55					

Table XII

Per Cent of Fleet Performing Navigation Tasks Using Radar

ROLE II : Navigator		NFO POSITIONS							
DUTY	D : Navigate Using Radar	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
16.	Display required heading, distance, and time of arrival to inserted position and fly-to points.			81	(13)	99	(25)		
17.	Using radar fix, update autonavigator or standby navigator or DR navigation computer.	(75)	(20)	(37)	100	(59)		(50)	88
18.	Distinguish coast in points using radar.		(13)	(25)	(100)	(72)		(50)	95

Table XIII

Per Cent of Fleet Performing Navigation Tasks Using Visual References and DR Procedures

ROLE II : Navigator		NFO POSITIONS							
DUTY	E : Navigate Using Visual References and DR Procedures	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1.	Update inertial/doppler or standby navigator or computer position of aircraft with respect to a visual reference of known coordinates.	93	77	81	98	99	93	(14)	94
2.	Plot own position using a visual reference of known coordinates.	83	88	81	100	98	93		93
3.	Navigate point-to-point using DR navigation.	80	88	78	100	100	78	(14)	93
4.	Plot own position using TAS, winds, heading, course, ground speed, and time intervals between check points.	80	89	78	97	96	78		78
5.	Monitor flight instruments while in unusual flight maneuvers, tactical situations, or a hostile environment and advise pilot.				100	99	85		95
6.	Monitor flight instruments, and advise pilot during an emergency or uncontrolled flight.				98	94	89		93
7.	Monitor flight instruments for actual/possible pilot vertigo or disorientation, and advise pilot.				98	98	93	(14)	97

Table XIII

Per Cent of Fleet Performing Navigation Tasks Using Visual References and DR Procedures

ROLE II : Navigator	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY E : Navigate Using Visual References and DR Procedures	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
8. Monitor flight instruments and advise pilot during rendezvous.				87	99	89		96
9. Monitor flight instrument and advise pilot during approaches, departures, and holding.				100	99	100		98
10. Monitor other aircraft visually to acquire relative position information needed to effect rendezvous.				72	99	85		96
11. Compute fuel flow and fuel required for bingo fuel figures.	(25)	(13)		100	96	96		97
12. Monitor visual check-points to provide a visual orientation as a backup for system navigation.				93	99	93		(73)
13. Estimate and monitor fuel consumption in order to ensure successful completion of flight.	(50)	(20)		100	98	89		(90)
14. Prepare appropriate charts and maps in order to provide a visual orientation and navigation throughout the flight as a precaution against navigational systems failure.	(62)	(26)		100	99	96		(86)

Table XIII

Per Cent of Fleet Performing Navigation Tasks Using Visual References and DR Procedures

ROLE II : Navigator			NFO POSITIONS							
DUTY E : Navigate Using Visual References and DR Procedures	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO		
TASK:										
15. Use a visual fix or a position relative to a visual checkpoint for a weapon drop or jammer antenna steering.	(25)				75	82		75		
16. Monitor flight instruments and advise pilot during takeoffs and landings.				(66)	99	100	(14)	97		
17. Use visual fix to update computer position or DIANE System.	(75)			(60)	96	93		(53)		
18. Update DRT by marking on top positions (buoys, ships, etc.) of known reference or by using a fix derived from another navigation aid.	(50)	92								
19. Plot proposed and actual aircraft track to and from the tactical area on a surface map.	(62)	89		(53)	(45)	(50)		(20)		
20. Update aircraft's position on the surface map by the use of a fix derived from a visual reference or a navigation aid.	(50)	91		(60)	(81)	(50)		(30)		
21. Maintain a DR plot on the DRT of own aircraft track target data, target fixes, buoy positions, and bearing lines in the tactical area.	(50)	91								

Table XIII

Per Cent of Fleet Performing Navigation Tasks Using Visual References and DR Procedures

ROLE II : Navigator		NFO POSITIONS							
DUTY	E : Navigate Using Visual References and DR Procedures	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
22.	Maintain a DR display of the tactical area on the ASA-16.		88						
23.	Update ASA-16 when DR navigating by marking on top positions of known reference or by using a fix derived from another navigation aid.		89						
24.	Plot an up-to-date tactical display on the DRT based on the SWAP report.	(37)	85						
25.	Monitor flight instruments and advise pilot in a hostile environment.				89	(81)	(25)		(53)

Table XIV

Per Cent of Fleet Performing Navigation Tasks Using VOR

ROLE II : Navigator		NFO POSITIONS							
DUTY	F : Navigate Using VOR	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									

1. Update Inertial/doppler position of aircraft with respect to VOR information.

63 67 65

2. Plot own position using VOR information.

68 77 88

XI'

Per Cent of Fleet Performing Navigation Tasks Using LORAN

ROLE II : Navigator		NFO POSITIONS							
DUTY	G : Navigate Using LORAN	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO

TASK:

1. Select proper channels in order to obtain a LORAN fix. 100 91 89
2. Monitor and update inertial/doppler with respect to LORAN fixing. 100 83 89
3. Plot own position using LORAN fixing. 100 90 89
4. Navigate point-to-point using LORAN fixing. 95 61 89
5. Calculate GS using LORAN fixing. 90 88 86
6. Calculate system drift trend using LORAN. (25) (40)

Table XVI

Per Cent of Fleet Performing Navigation Tasks Using Celestial Navigation

ROLE		NFO POSITIONS							
H : Navigator		1	2	3	4	5	6	7	8
DT, N	H : Navigate Using Celestial Navigation	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO

TASK:

1. Update inertial/doppler with respect to celestial information.	65	89	54
2. Plot own position using celestial information.	98	88	77
3. Navigate point to point using celestial information.	63	89	65
4. Calculate GS using celestial fixing.	58	78	57
5. Use the sextant manually to obtain a celestial fix.	80	91	66
6. Identify celestial bodies to receive a celestial fix.	83	(53)	70

Table XVII

Per Cent of Fleet Performing Navigation Tasks Using OTPI

ROLE II : Navigator		NFO POSITIONS							
DUTY I : Navigate Using OTPI		1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									

1. Plot own position using OTPI buoy information. (25) 82 (25)

2. Navigate point-to-point using OTPI buoy information. (25) 66

3. Update inertial/doppler with respect to OTPI buoy information. 50

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
1. Be aware of friendly forces' ship and aircraft dispositions, size, communications, sensors, and weapons.		96	95	93	95	96	100	83
2. Determine the best type of tactic to be used in order to best obtain the mission objective.		96	98	95	89	(100)	89	(63)
3. Recommend/coordinate lead and wingman support responsibilities in order to determine spatial positioning.				41	36	(75)	49	68
4. Determine how to utilize each sensor (including sensor search pattern, monitor time, etc.) independently or simultaneously in order to maximize target detection.		98	100	(40)	93	(75)	(28)	68
5. Select the best search altitude to conform with the type of sensor and search pattern selected in order to best achieve the mission objective.		98	100	(46)	87	(75)	94	(46)
6. Plan flight composition for tactical missions.				(53)	60	85	(14)	55
7. Select appropriate search pattern by considering sea state, wind, and area weather, and their effects on the sensors.		97	100		(13)	(25)	71	(23)

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
8. Evaluate threat information in order to select the optimum sensor mode for threat detection.		96	98	(13)	(18)	(75)	69	70
9. Determine/coordinate loose duece tactics in order to maintain mutual support both in maintaining the offensive and countering threat from a defensive position.					(31)	(25)	49	56
10. Recommend lead and wingman support responsibilities while searching for targets/emitters of opportunity during reconnaissance.				(13)	61	93		(36)
11. Ensure during nonacoustic/acoustic detection that all other sensor operators are alerted.		99	98					
12. Evaluate and compare the classification and analysis of acoustic/nonacoustic sensor contacts with the sensor operators.		99	93					
13. Ensure during nonacoustic/acoustic detection that all other sensor target information is displayed.		98	95					
14. Ensure during nonacoustic/acoustic detection that all sonobuoys in the detection area are monitored aurally and visually.		99	93					

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
15. Determine contact-classification reliability by noting the number of sensors that hold the same contact.		97	93					
16. Monitor in own headset contact buoys and neighboring buoys.		99	93					
17. Recommend to the pilot best altitude, airspeed, and flight path for sensor that is holding contact in order to best achieve mission objective.		99	90				(21)	
18. Determine when the reliability of contact classification has either degenerated or improved, and then initiate appropriate tactics.		97	93				(28)	
19. Ensure during buoy detection that the radar surface is updated.		96	88					
20. Determine if operators (JEZ or SS1, SS2) initial write-out evaluation is consistent with environmental data, known target type, and hydrophone depth.		92	100					

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
21. Direct operators (JEZ, JUL or SS1, SS2) during initial detection to initiate analysis and classification and to obtain a type write-out (includes Z, DR, SD doppler shift, dynamic changes, CPA changes).		94	98					
22. Determine the number of buoys that hold the same contact during initial detection.		160	100					
23. Determine a flight path that gives the most efficient, effective monitoring of the buoy search pattern.		37	100					
24. Select a random flight path so the exact boundaries of the search pattern cannot be determined by hostile tracking radar.		73	88		(13)			
25. Determine optimum passive tactics (barrier, datum, line of bearing, DIR R modules, random, etc.) that should be used in order to best carry out mission objective.		99	96					(14)

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
26. Analyze SWAP information with respect to remote units position, possibilities of detection, possible search patterns, and other pertinent information concerning mission area.		98	90				(28)	
27. Determine hydrophone depths based on environmental limitations, target types, layer depths, and target depth using ASWEPS and BT buoy data.		100	100					
28. Determine buoy types (LOFAR, LOFAR/DIFAR, CODAR, JULIE, active) based on mission phase and buoy supply.		100	100					
29. Determine probability of detection using ASWEPS and BT buoy data.		100	100					
30. Select a buoy spacing that is compatible with the probability of detection for target type, environmental limitations, available buoy supply, sensor operator's capability to recognize signals and ability to analyze target information, and desired median detection range.		98	100					

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
31. Determine the sonobuoy search pattern size that would enclose the target within its boundaries for a maximum amount of time by considering the type age of the datum and the speed and course of the target.		98	100					
32. Determine ASW search patterns and coordination between all participating tactical units in order to detect possible threats.		83	90				(14)	
33. Utilize the controlled aircraft independently or simultaneously in order to maximize the capability for threat detection.						(25)	86	
34. Evaluate the impact of various fighter attitudes, threat altitudes, relative overtake, and look-up/look-down in order to detect possible threats.					(13)		(14)	90
35. Evaluate meteorological conditions (sun, clouds, haze, etc.) in order to recommend best search altitude for sensor detection.		(60)	(75)	(26)	(36)			76
36. Determine the best sensor mode of operations to be used to best obtain the mission objective.		(80)	(50)	(46)	(27)	100	(21)	(20)

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
37. Determine the best altitude and track in order to provide optimum emitter reception and jamming coverage.		(13)		(20)	(13)	100		
38. Evaluate intelligence data for expected emitter environment, both friendly and unfriendly.		(26)	(50)	(33)	(31)	100	(14)	(16)
39. Be aware of capabilities, limitations, and plans of the strike group (speed, formations to/from target, coast-in/coast-out points, fuel requirements, loiter time, combat radius, etc.) in order to determine the proper escort coverage.				(40)	(40)	100	(28)	(43)
40. Plan and coordinate mission responsibilities between other ECM support aircraft in order to maximize the utilization of resources.				(13)		93		
41. Select a proper radar mode (long pulse, AMTI, match-filter) that conforms with mission objectives and mission phase.			(25)	(26)	(45)		97	(36)
42. Ensure that NAV is maintaining an up-to-date tactical plot on the DRT.		98	(37)					

Table XVIII

Per Cent of Fleet Performing Search, Surveillance, and Detection Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Coordinate Search, Surveillance, and Detection Tasks	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
43. Ensure that NAV has plotted on the DRT and up-to-date tactical plot based on the SWAP report (including buoy positions, contact information, etc.)		95	(37)					
44. Select a radar policy (minimum sweeps, continuous) that conform with mission objectives and mission phase.		(66)	(75)	77	(54)		(35)	(43)
45. Determine appropriate ECM mode (either active or passive) to conform with known or pertinent target information.		(13)		81	(63)	(75)	(14)	(40)
46. Coordinate with pilot fuel management for optimum speed, altitude and endurance for mission.	(25)	(20)	(25)	(80)	(63)	(75)	(50)	(73)

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician		NFO POSITIONS							
DUTY B : Coordinate Localization and Attack		1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1. Recommend to the pilot best altitude, airspeed, and flight path in order to conform with type tactics, type sensor used, and datum time late.		94	97	98	87	(50)	80	(16)	
2. Determine proper moment to attempt to convert from passive tactics to active tactics.		98	100	83	93	66	(33)		
3. Evaluate enemy dispositions, possible ground fire, and missile sites in order to determine best heading and altitude to or from objective area (strike zone).			98	81	89	(14)	64		
4. Determine when attack criteria have been established and determine/initiate appropriate tactics.		95	97	87	89	(14)	(46)		
5. Determine the intercept point of a target with known course and speed.		85	100	(13)	87	89	(50)		
6. Compute drage index for aircraft configuration and relate these figures to aerodynamic performance.					94	82	80		
7. Determine when system reliability effectiveness has degraded or increased.		(25)	(26)	(62)	(73)	100	89	100	(66)

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
8. Evaluate enemy sensing devices (visual, radar, ECM, etc.) in order to select altitude and heading of strike for best tactical advantage.			(37)		81	(75)		62
9. Determine when contact classification reliability has degenerated and initiate appropriate tactics.		98	97		(13)		86	(26)
10. Determine the best tactic in order to attain the optimum weapon launch position.		92	97		94			(80)
11. Determine the best tactic to be used for the type situation and participating units (ships/aircraft).		98	100	(13)	82	(50)	(21)	(50)
12. Determine the best weapon to use by considering target speed, depth, maneuvering, and probability of fix, and type target.		89	89		83			(50)
13. Establish a single radar or ECM fix and attempt to convert to TV/visual, MAD, or buoy fix.		93	94		95			
14. Evaluate the relative performance of the controlled aircraft and the threat aircraft in order to maximize the controlled aircraft's performance characteristics.							77	90

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
15. Evaluate threat aircraft air-to-air weapons capabilities and determine the optimum approach to maximize controlled aircraft's weapon effectiveness while minimizing exposure to threat weapon systems.							66	87
16. Evaluate the intercept triangle and its associated principles in various types of intercepts in order to direct the aircraft/flight to launch envelope for selected weapon.							59	92
17. Evaluate fuel requirements in terms of loiter time and combat radius in order to determine strike requirements for mission success.				(53)	90	89		(83)
18. Change the range scale on the DVRI in order to optimize the display of the tactical area.					98		100	
19. Determine and recommend appropriate maneuvers necessary to spoil enemy AAA/AAM/SAM tracking solutions.				(53)	77	67		(86)
20. Determine the best delivery tactic which is most appropriate to threat/tactical environment.			(25)		88			68

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	H/N	ECMO	CICO	RIO
TASK:								
21. Insure that generated sensor contacts are entered into the system.			(62)		73		91	
22. Display and update the target's continuous predicted position using sensor information.		(33)	(75)	(20)	98		83	
23. Evaluate meteorological conditions (sun, cloud, haze, etc.) in order to direct aircraft to weapon release point while remaining undetected by enemy air/ground forces.			(25)		70			91
24. Evaluate classification and analysis of sensor contact.		(66)	(50)		96	89	(28)	
25. Ensure that all other sensor target information is displayed during target detection.		(26)	(37)		85		89	
26. Evaluate and compare visual contacts with pilot.		(33)	(37)	(60)	98	(50)	80	(80)
27. Prepare radar predictions for checkpoints and target utilizing RSP, target charts, and other intelligence sources.				84	98			(13)

Table XIX
Per Cent of Fleet Performing Localization and Attack Coordination Tasks

TASK:	RCLE III : Tactician		NFO POSITIONS							
	DUTY	B	1	2	3	4	5	6	7	8
		Coordinate Localization and Attack	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
			N/C	TACCO	TACCO	RAN	B/N	ECMO	CICG	RIO
28. Analyze target type, position, area, aspect, and size in order to determine aircraft altitude and inbound heading for optimum mission success.					98	94	(43)			
29. Obtain a contact correlation of sensor information using available information from other sensors.			95	100	(13)	(13)	(21)			
30. Determine the effects of target maneuverings, size, aspect depth, and speed in order to give the pilot a weapon fly-to point.			89	92	(22)	(16)				
31. Determine a fix from a known intersection of bearing lines.			93	84	(33)	(14)	(16)			
32. Localize a submarine contact using search buoys.			82	97						
33. Establish a single fix on ECM and attempt to convert to a radar fix			94	95	(27)	(13)				
34. Display and update on the ASA-16 or MPD the target's continuous predicted position using current sensor information.			94	100						

Table XIX

Per Cent of Fleet Performing Localization, and Attack Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
35. Ensure aircraft returning from strike mission are not being trailed by enemy aircraft.					(27)		94	(46)
36. Evaluate the effects of target maneuvering, target size, engagement altitude, closure rate, energy level, and angular drift in order to maneuver aircraft/flight effectively to the launch envelope for the selected weapon.					(27)		(21)	92
37. Evaluate fuel consumption versus range/time completion and altitude differential in order to direct aircraft/flight to launch envelope for selected weapon.					(27)		(14)	90
38. Detect significant changes in intercept parameters in order to direct the aircraft/flight to launch envelope for selected weapon.							(35)	93
39. Determine the basic air combat maneuver in order to attain the optimum launch position.					(18)		(14)	84
40. Determine when an engagement has degenerated into a defensive situation in order to recommend prudent escape maneuvers to the pilot considering bingo direction, fuel, and defenses.					(36)		(21)	87

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician	NFC POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 E/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
41. Advise pilot of appropriate maneuvers necessary to spoil enemy A-A or G-A missile tracking solutions.				(20)	(63)	(25)		79
42. Coordinate the capability of handling simultaneously a multi-target situation.					(18)	(25)	89	(20)
43. Display a track history on the radar scope of multiple radar fixes and provide a continuous predicted position.							69	
44. Ensure that any ECM fix is entered into the system and correlated with a radar fix.			(62)				49	
45. Convert to a radar fix from an FCM fix given by the ship.		(13)	(25)				49	
46. Determine a fix from a known intersection of radar, and ECM bearing lines.		(26)	(50)		(13)		46	
47. Monitor strike's coast-in/coast-out check points using radar.				(26)	(18)		100	(23)
43. Provide pilot with radar display on the PHD.					99			

Table XIX
Per Cent of Fleet Performing Localization and Attack Coordination Tasks

TASK:	ROLE III : Tactician	NFO POSITIONS							
		1	2	3	4	5	6	7	8
	DUTY B : Coordinate Localization and Attack	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
49. Prepare alternate methods of delivery for special weapons.									100
50. Select OAP's for the each target.				(26)		99			
51. Determine the most effective method of jamming specific enemy emitters (by considering electromagnetic propagation characteristics, radar theory, receiver theory, TJS theory of operation).									100
52. Determine optimum track, altitude, speed, and configuration to best provide ECM support for a strike group in the expected emitter environment.						(18)			100
53. Determine support responsibilities during stand-off or penetration while the strike group is entering an expected emitter environment.						(18)			100
54. Determine the effect of system component malfunctions on jamming effectiveness.									100
55. Determine and calculate jamming corridors and burn-thru ranges for the strike group.									93

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
56. Determine the effects of weather conditions on jamming effectiveness and hostile emitter effectiveness.						70		
57. Determine the effects of enemy ECCM techniques upon jamming effectiveness.						96		
58. Monitor cockpit displays and readouts in order to recognize when enemy ECCM is being employed.			(13)	(13)	(13)	93		(13)
59. Determine alternate tactics to be used in case of system degradation due to weather, system malfunction, or enemy ECCM.		(13)		(33)	(27)	96	(14)	(20)
60. Determine alternate tactics to be used in case of a change in emitter environment or strike group deviation.				(20)	(22)	96	(14)	(16)
61. Plan and coordinate mission responsibilities between other ECM support aircraft in order to maximize the utilization of resources.					(13)	93		(14)

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
62. Determine priority of threat emitters based upon threat potential, range, accuracy, and susceptibility to jamming.				(13)	(13)	100		(13)
63. Determine when jamming should commence based on intelligence data, the tactical situation, and strike group timing.						100	(14)	
64. Determine optimum jamming modes and modulations based on the tactical situation, type and priority of threat emitters.						100		
65. Coordinate use of DECM, JFS, and communications jammers for maximum utilization of each system with minimum EMI between systems.						85		
66. Determine contact classification reliability by noting the number of units that hold the same contact.							91	
67. Recommend to the pilot best altitude, airspeed and flight path for the sensor that is holding contact, in order to best achieve mission objective.		(13)	(25)	(13)	(22)	(25)	74	(16)

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Coordinate Localization and Attack	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
68. Evaluate the classification and analysis of the radar contact.		(26)	(25)	(13)	(31)	(25)	94	(30)
69. Ensure if practical during target detection that other radar targets are not ignored.		(26)	(37)	(20)	(31)		100	(30)
70. Display target's track history course and speed vector on the radar scope.							97	
71. Plan a secondary route of approach to the primary objective area in case of bad weather.		(13)		93	(72)	(50)		(30)
72. Plan alternate mission in case weather conditions preclude completion of primary mission.		(20)		100	(77)	(50)		(23)
73. Insure that the ECM is being monitored and that the pilot is alerted during target detection.		(20)	(37)	(40)	97	(75)		(40)
74. Determine when system reliability effectiveness has degraded or increased.		(20)	(50)	100	(77)	(50)	(42)	(40)
75. Determine point in mission to switch from standby ECM to repeat.				80	(90)	(75)		(40)

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

TASK:	ROLE III : Tactician		NFO POSITIONS							
	1	2	3	4	5	6	7	8		
DUTY B : Coordinate Localization and Attack	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO		
76. Determine the best tactic in order to attain the optimum photo coverage.		(40)		100	(13)					
77. Determine the best cameras to use by considering type target.		(33)		91						
78. Initiate control of the TV in order to track the target.			55	(46)						
79. Determine and display various radius MAD range prediction circles about a datum depending upon time late.		(13)	78							
80. Monitor in own headset enemy ECM and recommend appropriate tactics/evasive maneuvers if detected.				93	(68)	(50)	(14)	(30)		
81. Ensure that NAV is plotting on the DRT all target data, target fixes, buoy positions, and bearing lines in order to maintain an up-to-date tactical picture.		99	(25)							
82. Position aircraft for reattack, if required.		(73)	(62)		(54)			(46)		

Table XIX

Per Cent of Fleet Performing Localization and Attack Coordination Tasks

ROLE III : Tactician		NFO POSITIONS							
DUTY B : Coordinate Localization and Attack	1	2	3	4	5	6	7	8	
	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4	
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:									

83. Direct copilot to operate aft camera during or after attack.

(13)

Table XX

Per Cent of Fleet Performing Intelligence Collection and Dissemination Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY C : Coordinate Intelligence Collection and Dissemination	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
1. Construct and conduct mission brief on matters pertinent to the mission and its success.		99	100	95	86	100	100	87
2. Record pertinent intelligence data and inflight information for analysis, debrief purposes, OP-REP-4 Report, etc.		90	100	100	99	93	97	88
3. Record weather data inflight.		88	95	91	95	78	(21)	84
4. Determine from available information the weather, wind, sea state, and cloud layers in the mission area.		94	100	95	95	89	77	(26)
5. Assess, record, and report mission effectiveness.		(80)	(75)	100	96	93	97	88
6. Be aware of unfriendly defensive installations in the target area in terms of missile and AAA capabilities, threat envelopes, and ECM signals.		(13)		95	90	100	89	(53)
7. Record unfriendly ECM contacts as to duration, strength, position, frequency, band, and the affect on own ECM.		84	27	95	(50)	(75)		76

Table XX

Per Cent of Fleet Performing Intelligence Collection and Dissemination Coordination Tasks

ROLE III : Tactician	NFO POSITIONS									
	1	2	3	4	5	6	7	8		
DUTY C : Coordinate Intelligence Collection and Dissemination	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 R/N	EA-6 ECMO	E-2 CICO	F-4 RIO		
TASK:										
8. Use hand-held camera inflight for photographic intelligence.		(26)		(33)	93	63	(14)	93		
9. Determine from available intelligence all information including signature and ECM characteristics of possible targets in the operating area.		97	90	(20)	90	(75)		(33)		
10. Be aware of unfriendly target types, speeds, missile capabilities, operating range, signature characteristics, and ECM signals.		100	97	(66)	(50)	(75)	91	(53)		
11. Display and/or analyze SWAP information received by on-station units concerning the mission area.		96	92				80			
12. Record ECM/ESM contacts (including aircraft position at time of contact, threat bearing, and emitter characteristics).		(26)		93	84	96		(16)		
13. Maintain photographed target data for debrief purposes and postflight analysis.		86	57	(33)	(50)					
14. Determine acoustic range predictions using ASWEPS and BT buoy information.		99	97							

Table XX

Per Cent of Fleet Performing Intelligence Collection and Dissemination Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY C : Coordinate Intelligence Collection and Dissemination	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
15. Determine from available information the temperature gradients, convergence zones, layer depths, and bottom depth in the mission area.	99	100						
16. Maintain a weapon/store summary for post-flight tabulation of weapon/ordnance usage for debrief purposes.	91	82		(40)				
17. Ensure buoy contacts are properly annotated.	89	100						
18. Visually rig surface contacts using proper rigging techniques.	(37)	100	100	(13)	(22)	(50)	(21)	
19. Ensure all MAD contacts are properly annotated on the MAD recorder.	96	97						
20. Ensure the magnetic tape recorder is loaded/off-loaded and properly annotated for debrief and future reconstruction of flight.	97	100			(27)	(50)		
21. Display/record target signature characteristics and ECM signal information for analysis of flight and debrief.	93	67				(75)		

Table XX

Per Cent of Fleet Performing Intelligence Collection and Dissemination Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY C : Coordinate Intelligence Collection and Dissemination	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
22. Display/record target contact data by sensor type (buoy, MAD, ECM, TV, visual, radar) for analysis of flight and debrief.		92	86					
23. Recall from the computer intelligence data and navigation data inflight or postflight.	(37)		(50)		80	(50)	(14)	
24. Obtain RSP of checkpoints and target areas.					100			
25. Utilize system flight recorder for signal evaluations, pertinent tactical information, operator's remarks, and other important information for debrief/intelligence purposes.		(33)	(50)		(36)	22		
26. Coordinate with the air intelligence officer during the debrief in filling out the OPREP-4 Report.		(20)		(66)	(36)	89	(21)	(20)
27. Ensure appropriate operators annotate BT buoy information on the recorder.	(25)	76	89					
28. Maintain a DRT plot of pertinent intelligence data, tactical information, and navigational tracks and coordinates for analysis and debrief purposes.	(25)	91		(13)				

Table XX

Per Cent of Fleet Performing Intelligence Collection and Dissemination Coordination Tasks

ROLE III : Tactician	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY C : Coordinate Intelligence Collection and Dissemination	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO

TASK:

29. Ensure complete equipment status available for debrief.

(60) (75) (53) (77) (50) (71) (26)

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY A : Manage Radar	1	2	3	4	5	6	7	8	
	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4	
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:									
1. Determine airspeed, altitude, mode selection, and search pattern in order to optimize radar capabilities.	95	95	95	98	82		94	96	
2. Determine and/or select an alternate radar mode in order to optimize system effect in the event of a partial system malfunction.			(50)	95	92		97	96	
3. Determine radar transmit mode to be used which is most appropriate to threat/tactical environment.				86	92		97	95	
4. Coordinate information from radar with other system sensors.	95	97	97	(66)	87		91	(40)	
5. Determine when to use radar independently and/or simultaneously with other sensors.	97	97	97	(60)	84		81	(36)	
6. Calculate the effects of ECM on radar in order to employ alternate modes to counter the ECM.	78	58	58	(46)	(54)		80	91	
7. Transition from ECM or other type fix contact to acquire airborne/surface target using radar.	81	32	32	(13)	(22)		74	79	

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE . V : Sensor Manager			NFO POSITIONS							
DUTY A : Manage Radar			1	2	3	4	5	6	7	8
			P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
			N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:										
8. Determine on/off radar monitoring cycles and best scanning pattern (sector or continuous) to be used which are most appropriate to threat/tactical environment.			(46)	(50)	68	68	97	(14)	85	
9. Select an altitude that provides adequate radar coverage.			94	100	98	97	97	(63)		
10. Determine the presence or evaluate effects of atmosphere conditions which will degrade radar presentation.			(20)	(50)	98	96	69	(70)		
11. Determine a radar policy (minimum sweeps, continuous scan, sector scan) that conforms with mission objectives and mission phase.			100	97	84	(63)	(28)	(76)		
12. Determine when to use search presentation, normal presentation and expanded presentations while on a strike mission.					98	100	100	(63)		
13. Acquire, monitor and track targets using radar.					(73)	96	100	(90)		

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	A : Manage Radar	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:									
14.	Vary radar frequency and channel as required, in order to reduce atmospheric or ECM degradation of display.				(13)	93		94	(30)
15.	Determine when to use video gain and receiver gain.				(66)	97		91	(53)
16.	Determine and select appropriate alternative in order to minimize radar degradation.				84	(50)		97	(43)
17.	Designate work/rest cycles for the radar operator/SS3.		96	89					
18.	Evaluate the effects of own altitude, sea state, surface weather conditions, surface/airborne target size, and cloud conditions in order to determine radar equipment effectiveness.		98	100	100	97		63	78
19.	Control the radar in order to view the radar presentation on the other displays.		86	89	(13)	(45)			
20.	(a) Determine radar mode and beam selection in order to optimize target return.				98	(68)			(63)

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY A : Manage Radar	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO	
TASK:									
20. (b) Determine radar antennae pattern and altitude differential in order to optimize target return.				(66)	(54)		63	(60)	
21. Interpret or obtain translation of IFF/SIF information on the scope as friendly or unfriendly.			42				91	(60)	
22. Record radar contacts in the tactical log/narrative.		92		(20)					
23. Display data associated with information from the various sensors (inside or outside the aircraft).		(20)	(37)		(13)		97		
24. Insure that the radar operator reports all contacts to the navigator or enters into the system.		97	89				(14)	(13)	
25. Determine and control elevation search angle and altitude differential to set up scan and plan intercept.								98	
26. Transition from visual contact to acquire airborne target using radar.								96	
27. Evaluate effects of surface target size in order to determine degradation of radar display.			(25)	(26)	(45)			76	

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY A	:	1	2	3	4	5	6	7	8
	:	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	:	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
28. Ensure aircraft returning from strike mission are not being followed by enemy aircraft.					(13)			89	(36)
29. Search for targets using radar.			(46)	(50)	(86)	(50)		100	(86)
30. Monitor radar in order to identify friendly/unfriendly contacts by interpretation of IFF/SIF information on the scope.								100	(50)
31. Monitor automatic track of target.					(45)			97	(76)
32. Monitor track of target using automatic track function.					(31)			94	(66)
33. Monitor the acquisition of target in automatic acquisition.					(13)			94	(66)
34. Coordinate target acquisition with carrier, aircraft or surface unit in non-ECM environment.					(22)			89	(50)
35. Search using expanded presentation.					(46)	86		(28)	(36)
36. Search using search presentation.					(46)	100		(14)	(73)
37. Search using continuous scan.					(40)	98		(14)	(50)

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY A : Manage Radar	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO	
TASK:									
38. Search using single scan.			(25)	(13)	68		(14)	(70)	
39. Initiate control of the radar in order to view the radar presentation on the DVRI.					99				
40. Determine radar antennae pattern and altitude differential in order to optimize target return.				(53)	97		(14)	(50)	
41. Coordinate radar and its modes using the auto/standby navigator for coordination.									95
42. Determine amount of video gain and I.F. gain needed while on a strike mission.				95	(54)		(21)	(20)	
43. Monitor range switching with altitude change.				81	(45)			(26)	
44. Display, on the MPD representing the radar horizon, a range circle whose center is the aircraft symbol.			92						
45. Store and recall all system-held radar contacts.			92					(21)	

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY A : Manage Radar	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO	
TASK:									
46. Ensure that radar operator monitors land distance and reports relative bearings.		94	(25)						(16)
47. Ensure that radar operator reports all land mass data.		91	(50)						(13)
48. Plot radar contacts.	(25)	92	(25)	(53)	(31)		(42)	(71)	79
49. Monitor radar in order to identify friendly/unfriendly contacts by interpretation of IFF/SIF information on the scope.									58
50. Employ rapid relock when switching from pulse to PD modes.									68
51. Employ rapid relock when switching from PD to pulse modes.									67
52. Monitor track of target using pulse HOJ jam angle track.									47
53. Monitor track of target using PD HOJ jam angle track.									

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY A :	Manage Radar	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
54.	Monitor track of target using pulse AOJ jam angle track.								67
55.	Monitor track of target using PD AOJ jam angle track.								46
56.	Track the target using pulse manual or semi-manual track.								95
57.	Monitor track of target using pulse automatic track.								96
58.	Monitor track of target using PD automatic track.								64
59.	Acquire the target from pulse search in ECM environment.							(21)	82
60.	Acquire the target from pulse search in non-ECM condition.							(21)	98
61.	Monitor the acquisition of target in automatic acquisition.							(28)	70

Table XXI

Per Cent of Fleet Performing Radar Management Tasks

ROLE IV : Sensor Manager	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Manage Radar	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
62. Acquire target from velocity search in ECM environment.								58
63. Acquire target from velocity search in non-ECM conditions.								68
64. Search for targets using pulse search.							(14)	98
65. Search for targets using PD search.								68
66. Determine threat contact formation speed/altitude for optimum utilization of weapon system.							(50)	(83)
67. Determine Radar Capabilities as indicated by conducting "BITS."					(36)		(21)	(86)
68. Develop and utilize degraded radar techniques to get most out of system.				(46)	(54)		(57)	(83)
69. Determine best operating mode, techniques, etc., to employ radar; i.e., use of scan converter, out, tilt, PRF, etc.			(25)	(20)	(40)		(57)	(36)

Table XXII

Per Cent of Fleet Performing ECM/DECM Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY B : Manage ECM/DECM		1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1. Monitor ECM for enemy missile and/or radar alert.		64	21	65	93	95	89	(14)	89
2. Evaluate ECM to determine what type of radar is painting your aircraft.		91	34	(46)	94	(100)	93		93
3. Ensure the ECM system is initiated.		95	34	95	100	(75)	(35)		(56)
4. Evaluate threat information in order to select the optimum ECM mode in order to nullify the threat.				78	90	(75)			67
5. Determine appropriate DECM mode to achieve optimum threat nullification in conjunction with the tactical jamming system (TJS).				(26)		89			(13)
6. Monitor operation of chaff dispenser.				93	99	(100)			84
7. Coordinate information from ECM with other system sensors.		86	34	58	(18)	(50)	(35)		(13)
8. Determine when to use ECM independently and/or simultaneously with other sensors.		95	34		77	(50)	(28)		(26)

Table XXII

Per Cent of Fleet Performing ECM/DECM Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY B	: Manage ECM/DECM	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
9. Determine ECM search pattern to conform with known or pertinent target information.			89	31		88	(75)	(14)	(13)
10. Determine frequencies, bands, and modes to be monitored which are most appropriate to threat/tactical environment.			(46)	(50)	88	(36)	93		67
11. Analyze and classify ECM contacts as to friendly or unfriendly.			(20)	(25)	(13)	85	(100)		75
12. Acquire, track, and fix targets using ECM.			(53)	(50)	(06)	42	(75)	(28)	61
13. Employ active ECM countermeasures using ECM system in rear cockpit.					80	73	(100)		(63)
14. Determine rate and chaff quantities.					100	(63)	89		(73)
15. Monitor chaff dispense operation.					100	(63)	89		(80)
16. Perform ECM Jamming.					77	33	(75)		(23)
17. Ensure the ECM operator evaluates and classifies all contacts received (such as target's frequency, platform, band, etc.)			98	34			(50)		

Table XXII

Per Cent of Fleet Performing ECM/DECM Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY B : Manage ECM/DECM		1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
18. Determine and select chaff and/or DECM repeater control sources (auto, manual, SIR) which is most appropriate to the threat environment and aircraft status.					61	(72)	85		(56)
19. Monitor and assess DECM equipment for proper operation.					(40)	(40)	96		(33)
20. Evaluate and assess mutual interference between DECM and TJS equipment.							85		
21. Select system assistance in employing the deception repeaters and/or chaff dispenser.						(18)	70		(33)
22. Determine effects of own aircraft maneuvering and altitude, range from target, and target output in order to determine system capabilities and target acquisition.					(20)	(31)	78	(21)	(36)
23. Determine altitude and search pattern in order to optimize search capabilities.			(33)		(13)	(18)	70	(14)	(26)
24. Ensure that generated emitter contacts are entered into the tape recorder.									22

Table XXII

Per Cent of Fleet Performing ECM/DECM Management Tasks

ROLE IV : Sensor Manager			NFO POSITIONS								
	DUTY	B :	Manage ECM/DECM	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK.											
25.	Determine and select the best deception technique (repeater and/or chaff) against threat emitters.						(20)	(81)	74		(16)
26.	Advise pilot of appropriate maneuvers necessary to spoil enemy AAM/SAM tracking solutions.						(26)	(45)	(75)		78
27.	Plot ECM contacts on the DRT.				99				(25)	(14)	
28.	Search for airborne or surface targets using ECM.				(20)	(25)	(20)	63	(75)	(14)	79
29.	Evaluate and classify ECM contacts in order to determine emitter characteristics.				(13)	(25)		87	(50)		(23)
30.	Monitor DECM for missile launch.						66	(18)	(25)		(16)
31.	Display ECM contacts.				95	(62)		(18)	(25)	(28)	
32.	Record ECM contacts in the tactical log/narrative.				92	(25)	(13)	(18)	(75)	(14)	
33.	Ensure ECM operator photographs and annotates ECM contacts in log.				84						

Table XXII

Per Cent of Fleet Performing ECM/DECM Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY B : Manage ECM/DECM		1	2	3	4	5	6	7	8
		P-CC	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
34. Ensure that all pertinent ECM parameters which are desired for classification are entered into the system.		34			(75)				
35. Store and recall all system-held contact's.		32			(14)				
36. Select appropriate antennas.					95	(25)			
37. Initiate system procedures (barometric altimeter setting and calibration; clock reset, etc.) in order to ensure accurate recording on tape for possible navigation replace during processing of tape.					98	(25)			
38. Monitor recording of aircraft's present position.					98	(13)	(25)	(13)	

Table XXIII

Per Cent of Fleet Performing Visual Scan Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	C : Manage Visual Scan	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1.	Select an altitude that prevents possible visual detection.	97	77	61	(50)	51	(66)		
2.	Track airborne/surface target visually.	93	90	(13)	94	(50)	97		
3.	Transition from ECM contact to visual track of airborne/surface target.	80	31	(31)	(50)	63	72		
4.	Transition from radar contact to visual track of airborne/surface target.	97	100	(20)	83		97		
5.	Determine when to use visual lookouts independently and/or simultaneously with other sensors.	98	97	92	(50)	(43)			
6.	Establish an efficient lookout policy.	96	100	99	(75)	(60)			
7.	Acquire air controller and ground target visually.			78	(50)	82			
8.	Monitor ground for terrain avoidance.			(20)	95	(75)	90		

Table XXIII

Per Cent of Fleet Performing Visual Scan Management Tasks

ROLE IV : Sensor Manager	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY C : Manage Visual Scan	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
9. Monitor the tactical flight area visually (outside cockpit) while in unusual flight maneuvers, tactical situations, or a hostile environment and advise the pilot.					96	(75)		98
10. Monitor the area (carrier or airport) while taxiing for possible hazards, collision, or FOD.				(13)	100	(100)	(21)	98
11. Monitor ground for position of ground target or ground fire.				(26)	95	(100)		67
12. Evaluate the effects of sea state, surface weather conditions, and cloud conditions on visual scanning effectiveness.		96	97		(45)	(50)	(14)	(50)
13. Coordinate visual scan with the system sensors using the computer or console display for coordination.			(25)		85	(25)		(13)
14. Coordinate transition from radar contact to visual acquisition of airborne/surface target by pilots in own aircraft or in controlled aircraft.		(13)	(37)		(40)		86	(53)
15. Plot visual contacts on the DRT.	(25)	92						

Table XXIII

Per Cent of Fleet Performing Visual Scan Management Tasks

ROLE IV : Sensor Manager	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY C : Manage Visual Scan	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
16. Display visual contacts on the ASA-16.		78						
17. Record visual contacts in the tactical log/narrative.		94	(25)			(25)	(14)	
18. Determine relative importance of multisurface targets.		90	(75)	(26)	(18)	(25)	(35)	
19. Record ship Rig Data.	(75)	99	(62)		(22)			(13)
20. Compare name, course, speed, and position with intelligence data and with publication data to determine if target should be rigged (photographed).	(37)	99	(87)		(27)	(50)	(21)	(23)
21. Store and recall all system-held visual contacts.			82			(25)		
22. Visual scan of flight instruments.				(66)	(63)	(50)	(14)	(63)
23. Check visually for airborne traffic on departures/approaches.			(25)	(20)	(86)	(75)	(21)	(83)
24. Maintain visual contact with wingman/section while in lead.				(13)	(86)	(75)		(83)

Table XXIV

Per Cent of Fleet Performing TV Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY D	: Manage TV	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	R/N	ECMO	CICO	RIO
TASK:									
1. Ensure that all TV contacts are entered into the system.				60					
2. Direct the initiation of TV by SS3.				76					
3. Monitor TV information on the MPD while SS3 maintains control.				74					
4. Control the TV and monitor MPD.				68					
5. Store and recall all system-held TV contacts.				55					
6. Determine TV mode (manual, autotrack) and setting (zoom control, target, beam).				53	(26)				
7. Recommend to SS3 TV mode (manual, auto-track) and setting (zoom control, target, beam) to be used.				50					
8. Select mode (manual, auto-track).				52	(26)				
9. Transition from other type fix (ECM, DIFAR, Radar) to acquire airborne/surface target using TV.				65	(13)				

Table XXIV

Per Cent of Fleet Performing TV Management Tasks

ROLE IV : Sensor Manager	NFO POSITIONS							
DUTY D : Manage TV	1	2	3	4	5	6	7	8
	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
10. Track target visually using TV.			55	(60)				
11. Evaluate effects of sea state, surface weather conditions, and cloud conditions on TV equipment effectiveness.			66	(26)				
12. Determine when to use the TV independently and/or simultaneously with other sensors.			68	(53)				
13. Determine the presence of and evaluate effects of atmospheric conditions which will degrade TV presentation.			(25)	82				
14. Select an altitude that provides adequate TV coverage while remaining within limitations imposed by mission.			(25)	66				
15. Determine airspeed, altitude, and mode selection in order to optimize TV capabilities during mission.						66		
16. Determine alternate TV modes in order to optimize system effect in the event of a partial system malfunction.								70

Table XXIV

Per Cent of Fleet Performing TV Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	D	1	2	3	4	5	6	7	8
	: Manage TV	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
17. Evaluate effects of weather in order to determine degradation of TV display.				(50)	64				
18. Evaluate effects of surface target size and altitude in order to determine degradation of TV display.				(37)	60				
19. Coordinate TV and its modes using the auto/standby navigator for coordination.			(13)		75				
20. Utilize TV to check proper operation of landing gear and determine gear malfunctions.					(80)				
21. Use TV to monitor landing gear, and align aircraft going over shuttle.					(80)				
22. Use TV to update inertial.					(80)				
23. Use TV to recon target during "No Radar" situation.					(80)				
24. Use TV for aircraft positioning during oblique route track.					(80)				

Table XXV

Per Cent of Fleet Performing Acoustic Sensor and Sonobuoy Management Tasks

ROLE IV : Sensor Manager	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY E : Manage Acoustic Sensors and Sonobuoys	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	F-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
1. Specify buoy channel priorities to be used during the flight.	100	100	100					
2. Direct the acoustic sensor operators to initiate analysis and classification procedures in order to obtain a preliminary analysis and classification.	97	100						
3. Determine the number of buoys that hold the same contact.	100	100						
4. Monitor in own headset any buoy channel.	99	100						
5. Evaluate signature characteristics of contact on grams.	99	92						
6. Evaluate the effects of sea state and surface weather conditions on buoy effectiveness.	100	97						
7. Designate work/rest cycles for sensor.	97	97						
8. Determine when to use the acoustic sensors independently and/or simultaneously with other sensors.	99	100						

Table XXV

Per Cent of Fleet Performing Acoustic Sensor and Sonobuoy Management Tasks

ROLE	IV : Sensor Manager	NFO POSITIONS							
		1	2	3	4	5	6	7	8
DUTY	E . Manage Acoustic Sensors and Sonobuoys	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:									
9. Coordinate information from acoustic sensors with other system sensors .			89	100					
10. Ensure that sensor operators have audio control and are monitoring the contact and neighboring buoys both aurally and visually .			96	100					
11. Determine a sonobuoy monitoring cycle which is appropriate to the tactical environment .			98	100					
12. Insure that all signature characteristics of targets detected during the mission are recorded .			95	89					
13. Insure that acoustic sensor contacts are evaluated and plotted or entered into the system .			99	100					
14. Identify the buoys that are to receive command tone transmission .									
15. Activate command tone transmission to the buoy in order to turn on the buoy VHF transmitter .									
16. Activate command tone transmissions to the buoy to revert the buoy VHF transmitter to the quiet state .									

Table XXV

Per Cent of Fleet Performing Acoustic Sensor and Sonobuoy Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	E : Manage Acoustic Sensors and Sonobuoys	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
17. Activate command tone transmission to release the hydrophone cables from selected buoys.									
18. Activate command tone transmissions to scuttle selected buoys.									
19. Ensure acoustic operators monitor the BFI.			(80)	100					
20. Ensure tape recorder is working and recording necessary information.			96	(62)					
21. Activate the automatic sonobuoy tuning mode for the AQA-7 at sensor stations 1 and 2.									68
22. Store and recall all system-held buoy contacts.									92
23. Activate command signal tone transmission to terminate acoustic recording of buoys and commence VHF transmission of previously recorded data.									
24. Display buoy contacts on the ASA-16.									94

Table XXV

Per Cent of Fleet Performing Acoustic Sensor and Sonobuoy Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	E : Manage Acoustic Sensors and Sonobuoys	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
25.	Record buoy contacts in the tactical log/ narrative.		90	(25)					
26.	Pict system-held buoy contacts on the DRT.	(37)	91						

Table XXVI

Per Cent of Fleet Performing MAD Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	F : Manage MAD	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1.	Determine when MAD should be turned on and monitored.		98	100					
2.	Ensure a calibrated MAD display is kept on the recorder paper.		86	81					
3.	Display MAD fixes.		97	95					
4.	Analyze course and speed of target using MAD information.		97	97					
5.	Determine target's continuous predicted track using MAD.		96	97					
6.	Determine when to use MAD independently and/or simultaneously with other sensors.		98	94					
7.	Coordinate information from MAD with other system sensors.		95	95					
8.	Record, store or recall MAD contacts.		91	87					
9.	Plot MAD contacts on the DRT.	(25)	89						

Table XXVII

Per Cent of Fleet Performing Sensor Data Exchange Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	G : Manage Sensor Data Exchange	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1.	Insert/modify computer program for optimum detection of emitters of interest (sites, lists, activation lists vs sites).						100		
2.	Determine and insert into the system the direction acceptance sector reference point (manual or site location) and sector width for analysis and fixing.						96		
3.	Insert into the system lists associated with each site or non-site.						100		
4.	Insert into the system search frequency ranges.			(75)			100		
5.	Insert into the system search PRF ranges.			(75)			100		
6.	Insert into the system search PW limits.			(75)			93		
7.	Insert into the system POD look-thru interval and number of pulses between lookthrus.						100		
8.	Insert into the system a code identifying multiple frequency radars.						100		

Table XXVII

Per Cent of Fleet Performing Sensor Data Exchange Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY G : Manage Sensor Data Exchange	1	2	3	4	5	6	7	8	
	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO	
TASK:									
9. Insert into the system POD tracking filter limits.									
10. Insert into the system type of jamming to be used.									

96

(25)

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Table XXVIII

Per Cent of Fleet Performing Communication Jammer Equipment Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
LUTY H : Manage Communication Jammer Equipment Tasks		1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1. Monitor for and recognize EMI with other aircraft systems.									
2. Evaluate emitters as to threat potential based or intelligence data from higher authority.									
3. Determine and select appropriate mode of optimum reception of threat emitters.									
4. Search, acquire, and identify threat emitters.									
5. Search the remaining environment for new emitters while jamming other emitters.									
6. Coordinate with other operators concerning crew duties/responsibilities during surveillance and acquisition.									
7. Determine and select system jammer mode of operation (continuous, intermittent) which is most appropriate to the threat/tactical environment and aircraft status.									
8. Tune manually the system receivers during emitter search and analysis.									

Table XXVIII

Per Cent of Fleet Performing Communication Jammer Equipment Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	H : Manage Communication Jammer Equipment Tasks	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
9.	Set jammers manually at frequencies of known emitters that are to be jammed.								82
10.	Determine altitude and search pattern in order to optimize search capabilities.		(13)			(13)			63
11.	Determine effects of own aircraft maneuvering and altitude, range from target, and target output in order to determine system capabilities and target acquisition.					(18)			74
12.	Ensure that generated emitter contacts are entered into the tape recorder.								22

Table XXIX

Per Cent of Fleet Performing Infra-Red Detection System Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY I : Manage Infra-Red Detection System	1	2	3	4	5	6	7	8	
	P-3C	P-3E	P-3C	RA-5	A-6	EA-6	E-2	F-4	
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:									
1. Determine status of IR System ("Test," cool down, film travel) .		(13)		100	(27)				
2. Select appropriate gain setting for environmental conditions.				100	(27)				
3. Record and photograph infrared targets.				86	(27)				
4. Monitor operation of IR during the IR run.		(13)		100	(31)				

Table XXX

Per Cent of Fleet Performing Onboard Surveillance System Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	J : Manage Onboard Surveillance System	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1.	Determine and select system mode of operation for optimum detection of emitters of interest which is most appropriate to threat/tactical environment.						100		
2.	Search using direction stripping.						100		
3.	Search using encoder pulse width stripping.						85		
4.	Acquire, identify, and localize (general area) airborne/surface emitters using direction stripping.						93		
5.	Acquire and identify airborne/surface emitters using pulse width.						93		
6.	Search the remaining environment for new emitters while jamming other emitters.						100		
7.	Search using video display.						96		
8.	Search using audio information from the receivers.						100		
9.	Search using PAN display.						100		

Per Cent of Fleet Performing Onboard Surveillance System Management Tasks

TASK:

Table XXX

Per Cent of Fleet Performing Onboard Surveillance System Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY J	: Manage Onboard Surveillance System	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
17.	Monitor system displays in order to detect emitters.						96		(13)
18.	Analyze and identify emitters using system displays and readouts.			(25)			96		
19.	Determine threat potential of emitters in order to determine optimum jammer utilization.						93		
20.	Analyze, classify, and measure parameters of threat emitters using system displays and readouts.						96		
21.	Determine and select the optimum acceptance pulse width for signal processing.						89		
22.	Determine the optimum size of the acceptance sector width for signal processing and general area fixing.						100		
23.	Analyze emitters by eliminating area of uncertainty by stripping signals through direction and pulse width.						100		

Table XXX

Per Cent of Fleet Performing Onboard Surveillance System Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	J : Manage Onboard Surveillance System	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
24. Determine and select the best jamming technique which is most appropriate to the threat/tactical environment.									
		100							
25. Display contacts acquired by the system's integrated receiver.									
		85							
26. Tune manually the system receivers and displays during environment/emitter search and analysis.									
		100							
27. Search for and acquire emitters using the routines to maximum effectiveness.									
		100							
28. Assign jammers manually to threat signals that meet the activated limits.									
		100							
29. Evaluate signal readouts of ECM contacts on the alarm status panel.									
		100							
30. Recall and display ECM (all of specific) contacts in the environment for tactical purposes.									
		(25)							
		89							

Table XXX

Per Cent of Fleet Performing Onboard Surveillance System Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY J	: Manage Onboard Surveillance System	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
31. Determine and select receiver functions (manual, scan, alarms) that is most appropriate to the threat/tactical environment and aircraft status.		100							
32. Activate or deactivate alarms associated or not associated with a threat emitter platform (site/non-site).		100							
33. Determine and select normal or bypass function for system operation dependent upon the threat/tactical environment.		93							
34. Determine and select a computer mode of operation (acquisition, look-thru) dependent upon the threat/tactical environment.		100							
35. Determine and select optimum computer sub-mode (auto or manual/assign or reassign) dependent upon the threat/tactical environment.		100							
36. Determine effects of own altitude, aircraft maneuvering, range from target and target output in order to determine system capabilities and target acquisition.		96 (14)							

Table XXX

Per Cent of Fleet Performing Onboard Surveillance System Management Tasks

ROLE IV : Sensor Manager		NFO POSITIONS							
DUTY	J : Manage Onboard Surveillance System	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
37. Determine altitude and search pattern in order to optimize search capabilities.									

Table XXXI

Per Cent of Fleet Performing Air-to-Ground Weapon/Ordnance/Sensors Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY	A : Manage Air-to-Ground Weapons/ Ordnance/Sensors	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:									
1.	Determine the appropriate weapon or sensor to be used according to availability and mission situation.		72	81	91	65		20	39
2.	(a) Monitor pilot release of selected weapons, rockets, flares, drop tanks, or pylons.		52	53	39	97		(21)	89
	2. (b) Monitor release of weapon in a controlled aircraft.							46	
3.	(a) Assess battle damage to own aircraft and target.		50	63	70	52			63
	3. (b) Assess battle damage to controlled aircraft.							57	
4.	(a) Monitor and advise pilot concerning aircraft speed, altitude, and heading in order to ensure that weapon delivery or sensor coverage is within required parameters.		85	82	100	98			91
	4. (b) Coordinate with pilot of controlled aircraft concerning air-to-ground release parameters.							20	
5.	Determine number and type of weapon or film load for operational mission.		67	76	91	65			38

Table XXXI

Per Cent of Fleet Performing Air-to-Ground Weapon/Ordnance/Sensors Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY	A : Manage Air-to-Ground Weapons/ Ordnance/Sensors	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:									
6.	Evaluate operational criteria in the selection of the type weapon or sensor to be used which would best achieve mission success.		75	84	89	75			41
7.	Select appropriate arming and arming release mode dependent upon weapon or sensor selected.		60	84	75	100			(13)
8.	Evaluate target aspect, speed, and course in order to determine optimum release position.		85	89	95	87			(43)
9.	Determine sensor or weapon effectiveness or kill probability against a specified target.		75	76	52	88			(23)
10.	Ensure that the desired weapon or sensor is selected, safely armed and delivered.		71	76	86	100			(26)
11.	Select appropriate center and/or wing station for selected weapon, tank or pylon release.		25	84	41	96			(16)
12.	Determine number, spacing, bearing for release, and the wing or bomb bay station for mines/depth bombs/rockets.		65	82		81			(16)

Table XXXI

Per Cent of Fleet Performing Air-to-Ground Weapon/Ordnance/Sensors Management Tasks

ROLE V : Weapons Manager			NFO POSITIONS								
DUTY	A	:	Manage Air-to-Ground Weapons/ Ordnance/Sensors	1	2	3	4	5	6	7	8
	P-3C			P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C			TACCO	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:											
13. Record or recall and display the number and type of weapons onboard, their defects, and their station position.				65	84	94	(26)				
14. Initiate or request computer assistance in selection, arming, and release (or start) of a specific type weapon (or sensor) .					92	52	100				
15. Visually locate a target for a sensor run when the target position is given in either TACAN, UTM coordinates, or a position relative to a visual check point.						73	94	90			
16. Coordinate with ground air-controller concerning target priorities and sensors to be used.						60	64	60			
17. Ensure proper system operation by performing a practice attack en route to the target.						(13)	99	24			
18. Ensure proper sensor operation by performing a sensor check en route to the target.				(13)	(50)	100	(18)				

Table XXXI

Per Cent of Fleet Performing Air-to-Ground Weapon/Ordnance/Sensors Management Tasks

ROLE V : Weapons Manager			NFO POSITIONS							
DUTY A : Manage Air-to-Ground Weapons/ Ordnance/Sensors			1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:										
19. Determine power, search, depth, ceiling/ mode, bomb bay station, and preset function (auto- matic, manual) for torpedoes.				85	87					
20. Select wing station for flare release.				21	39	(13)	(81)			
21. Evaluate submarine capabilities (number, size, speed, type) in the selection of the type weapon to be used which would best achieve mission success.				71	79					
22. Evaluate area water conditions in the selection of the type weapon to be used which would best achieve mission success.				63	71					(13)
23. Ensure that the weapon data are entered into the operational program.					87		98			
24. Ensure that the weapon or sensor system is initiated.				(13)	(62)	100	100			
25. Evaluate area terrain conditions in the selec- tion of the type sensors to be used which would best achieve mission success.						95	(31)			45

Table XXXI

Per Cent of Fleet Performing Air-to-Ground Weapon/Ordnance/Sensors Management Tasks

ROLE	V	: Weapons Manager	NFO POSITIONS							
			1	2	3	4	5	6	7	8
DUTY	A	: Manage Air-to-Ground Weapons/ Ordnance/Sensors	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:										
26. Prepare alternate methods of delivery for special weapons or for completing sensor coverage.						87	100			
27. Evaluate air-to-ground release parameters of dive angle, airspeed, and release altitude.							94			91
28. Determine optimum moment for weapon release on manual radar laydown.							93			81
29. Determine number and spacing for conventional bomb release.				(13)			98			60
30. Enter weapon load into weapon inventory tab-leau.					(87)		82			
31. Enter weapon load of controlled aircraft into computer.										51
32. Initiate computer attack mode to ensure sensor coverage.						48	(40)			
33. Select flasher mode for desired flasher operation.							77			

Table XXXI

Per Cent of Fleet Performing Air-to-Ground Weapon/Ordnance/Sensors Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY A : Manage Air-to-Ground Weapons/ Ordnance/Sensors		1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:									
34. Select appropriate flight path to ensure sensor coverage.				(25)	98	(22)			
35. Ensure that the proper ground speed and drift data are entered into the computer by monitoring readout.				(25)	95	(59)			
36. Assess sensor coverage of target.					100	(27)			
37. Ensure camera operation by observing camera control panel.					100	(18)			
38. Have backup data available for manual view finder operation should system failure occur.					98				(23)
39. Select drop parameters.			(26)					94	
40. Provide the computer with appropriate weapon ballistic data through selection of armament panel tapes.								100	
41. Ensure proper ballistic tapes have been selected on the armament panel.									100

Table XXXI

Per Cent of Fleet Performing Air-to-Ground Weapon/Ordnance/Sensors Management Tasks

ROLE V : Weapons Manager			NFO POSITIONS							
DUTY A : Manage Air-to-Ground Weapons/ Ordnance/Sensors	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIC		
TASK:										
42. Have ballistic data available for manual range line delivery should system failure occur.	100									
43. Direct controlled aircraft to weapon drop for selected weapon using radar.	63									
44. Evaluate type of threat and number of targets in order to determine which weapon the controlled aircraft should employ to best counter threat.	(22) 20									
45. Ensure special weapon drop area is clear of friendly airborne/surface units.	(13) (50) (31) 80 (13)									
46. Determine changes in mission execution to gain best reconnaissance.	(25) (26) (22) (20)									
47. Direct pilot weapon release on radar bombing mission.	(72) (23)									
48. Direct pilot heading, A/S, and altitude during radar bombing missions.	(72) (14)									

Table XXXII

Per Cent of Fleet Performing Air-to-Air Weapon Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY B : Manage Air-to-Air Weapons		1	2	3	4	5	6	7	8
		P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:									
1. (a) Assess battle damage to own aircraft and target aircraft.						26			55
1. (b) Assess battle damage to controlled aircraft.								51	
2. (a) Determine appropriate weapon to be used according to weapon availability and mission situation.				(25)		49			59
2. (b) Determine and recommend to controlled aircraft appropriate weapon to be used according to weapon availability and mission situation.								34	(13)
3. (a) Monitor pilot release of weapons.				(25)		60			87
3. (b) Monitor release of weapon from controlled aircraft.								57	
4. Evaluate the effects of number of targets, type of threat, and target size in order to determine which weapon the controlled aircraft should employ to best counter threat								46	73

Table XXXII

Per Cent of Fleet Performing Air-to-Air Weapon Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY	B : Manage Air-to-Air Weapons	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
5.	Evaluate target aspect and lateral separation in order to determine optimum firing position for controlled aircraft.							71	96
6.	(a) Enter weapon load into weapon inventory tableau.			(62)		52			
6.	(b) Enter weapon load of controlled aircraft into computer.							91	
7.	(a) Coordinate with pilot of controlled aircraft concerning missile firing parameters.							66	
7.	(b) Coordinate with pilot or flight concerning missile firing parameters.					(45)			96
8.	Ensure that the selected weapon is safely armed and delivered.			(25)		100			(33)
9.	Ensure that the weapon system is initiated.			(37)		63			(33)
10.	Select appropriate arming mode during armament selection dependent upon weapon selected.			(37)		61			(23)

Table XXXII

Per Cent of Fleet Performing Air-to-Air Weapon Management Tasks

ROLE V : Weapons Manager	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Manage Air-to-Air Weapons	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
11. Initiate computer assistance in the release of a specific type weapon.			(37)		56			(13)
12. Direct controlled aircraft to launch envelope for selected weapon using radar.					(13)		83	(13)
13. Evaluate aircraft and missile characteristics at varying altitudes in order to direct aircraft/flight to launch envelope for selected weapon.					(18)			93
14. Determine optimum moment when to commit weapon.			(25)		(59)			95
15. Determine number and spacing of rockets to be released.					(59)			43

Table XXXIII

Per Cent of Fleet Performing ASW Ordnance Stores Management Tasks

ROLE	V	: Weapons Manager	NFO POSITIONS							
			1	2	3	4	5	6	7	8
DUTY	C	: Manage ASW Ordnance Stores	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
			N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:										
1. Determine number and type of ordnance load for operational mission.				89	76		(27)			
2. Determine buoy type (LOFAR, LOFAR/DIFAR, CODAR, JULIE, Active) priorities for use during the different phases of a tactical mission.				97	97					
3. Determine buoy channels to be used during the specific tactical phases.				99	97					
4. Select appropriate mode for ordnance selection dependent upon buoy and channel availability.				91	95					
5. Direct Ordnance Operator to load the desired buoy (channel, type, and life) from one of the storage bins into a launcher tube or free fall chute).				100	100					
6. Direct Ordnance Operator to select the appropriate launcher tube on the manual launcher control box.				82	89					
7. Direct the Ordnance Operator to load the underwater sound source into a free fall chute.				89	89					

Table XXXIII

Per Cent of Fleet Performing ASW Ordnance Stores Management Tasks

ROLE V : Weapons Manager			NFO POSITIONS							
DUTY	C	: Manage ASW Ordnance Stores	1	2	3	4	5	6	7	8
	P-3C		P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4	
	N/C		TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:										
8. Direct Ordnance Operator to load desired smoke from the storage bins into a launcher tube or free fall chute.			97	92						
9. Select appropriate mode for ordnance release dependent upon ordnance to be expended.			99	97		(18)				
10. Determine number of ordnance stores to be released at one time.			91	97		(22)				
11. Release ordnance stores by depressing the search store release function when aircraft arrives over desired release point.			100	100						
12. Record or recall and display the number and type of buoys onboard, their defects, and their tube positions.			82	95						
13. Display or recall data concerning deployed buoys on the ASA-16.			97	92						
14. Direct Ordnance Operator to release ordnance from the free fall chute or by depressing appropriate switch on manual launcher control box.			94	97						

Table XXXIII
Per Cent of Fleet Performing ASW Ordnance Stores Management Tasks

ROLE V : Weapons Manager				NFO POSITIONS							
DUTY	C :	Manage ASW Ordnance Stores	1	2	3	4	5	6	7	8	
			P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4	
			N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO	
TASK:											

TASK:

15. Designate the desired release point or optimum moment for selected ordnance release.	99	100	(22)
16. Monitor and advise Pilot concerning aircraft speed, altitude, and heading in order to insure that ordnance delivery is within launch envelope.	99	84	(27)
17. Determine buoy life which would be appropriate to type mission, tactical phase, buoy supply, and desired life of the pattern.	98	92	
18. Determine type and life of smoke which would be appropriate to type mission, tactical phase, smoke supply, and desired life of the pattern.	99	79	
19. Ensure that the search stores data are entered into the operational program upon manual release.		100	
20. Request program assistance in selection, arming, and release of a specific type of ordnance.		92	
21. Ensure that NAV has plotted data concerning deployed buoys on the DRT.	99	(25)	

Table XXXIII

Per Cent of Fleet Performing ASW Ordnance Stores Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY	C : Manage ASW Ordnance Stores	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									

22. Display data concerning deployed buoys on (25) 91
the DRT.

Table XXXIV
Per Cent of Fleet Performing Active Jamming Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY D : Manage Active Jamming Against Ground/Air Targets	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO	
TASK:									
1. Determine when jamming should commence by considering threat emitter priorities, type of threat emitter priorities, type of threat emitters, the tactical situation, and jammer status.									100
2. Determine which emitters should be jammed by considering threat emitter priorities, type of threat emitters, the tactical situation, and jammer status.									100
3. Determine optimum method of jamming based upon type of threat emitter, the tactical situation, and jammer status.									100
4. Determine optimum jamming mode and modulation by considering the tactical situation, type of threat emitter, jammer status, onboard system (OBS) status, and aircraft altitude and maneuvering.									100
5. Determine number of jammers to be assigned to each emitter by considering threat emitter priorities, type of threat emitters, and the tactical situation.									93

Table XXXIV

Per Cent of Fleet Performing Active Jamming Management Tasks

ROLE V : Weapons Manager	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY D : Manage Active Jamming Against Ground/Air Targets	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
6. Ensure that the selected jammers are properly tuned/aimed (tune frequency, aim antenna) and radiating on the selected emitters.						100		
7. Monitor and assess jammer status during jamming.						100		
8. Evaluate effects of own aircraft maneuvering and altitude upon jamming operations.						93		
9. Coordinate jamming operations with the crew members.						100		
10. Evaluate OBS and jammer component malfunctions in order to achieve optimum jammer effectiveness.						100		
11. Coordinate with the carrier or other tactical controlling agency concerning threat emitter priorities and method of jamming.						70		
12. Evaluate jamming operations and its possible effectiveness by monitoring the jammers and system status.						100		

Table XXXIV

Per Cent of Fleet Performing Active Jamming Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY	D : Manage Active Jamming Against Ground/Air Targets	1 P-3C N/C	2 P-3B TACCO	3 P-3C TACCO	4 RA-5 RAN	5 A-6 B/N	6 EA-6 ECMO	7 E-2 CICO	8 F-4 RIO
TASK:									
13.	Monitor, recognize, and assess EMI with other aircraft systems.						93		
14.	Recognize and perform applicable jamming routines, as necessary.						89		
15.	Monitor and assess emitter status during jamming.						96		
16.	Select and manually set-on PODS to tuned signals.						100		
17.	Determine and select the best jamming technique which is most appropriate to the threat/tactical environment.						100		
18.	Utilize manual POD set-on technique (in order to steer the antenna in the direction of the emitter to be jammed and manually select frequency set-on).						100		
19.	Determine and select POD modulation to be utilized while jamming.						100		

Table XXXIV

Per Cent of Fleet Performing Active Jamming Management Tasks

ROLE V : Weapons Manager		NFO POSITIONS							
DUTY	D	1	2	3	4	5	6	7	8
Manage Active Jamming Against Ground/Air Targets		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									

20. Monitor weapon effective power against the threat emitter .

96

21. Determine and select POD control settings (auto, manual) which is most appropriate to the threat environment and aircraft status .

100

Table XXXV

Per Cent of Fleet Performing Preparation and Inspection of System Tasks

ROLE VI : Assessor of Systems		NFO POSITIONS							
DUTY	A : Preparation and Inspection of Systems	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIC
TASK:									
1.	Inspect cockpit of aircraft for loose gear, integrity, and proper configuration during pre/postflight.	90	98	97	100	98	100	97	99
2.	Pre/postflight inspect aircraft to check major systems/subsystems.	(25)	(26)	(62)	100	98	100	100	98
3.	Ensure that the crewmen and NAV have checked the major systems/subsystems during preflight and post-flight inspections.		100	97			(50)	(42)	
4.	Ensure computer acceptance, transfer, and storage of appropriate data by monitoring data readout.	90		94	(26)	98	96	94	
5.	Make system GO/NO-GO decision based on system status and mission requirements.		(53)	(62)	98	98	100	100	(73)
6.	Ensure that all required ordnance and armament loads are loaded/off-loaded safely and securely.		96	97		98			98
7.	Ensure that aircrew personnel properly prepared to execute safety procedures during flight and emergency conditions.	50	100	97	(18)	(25)	91	(16)	

Table XXXV

Per Cent of Fleet Performing Preparation and Inspection of System Tasks

ROLE VI : Assessor of Systems	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Preparation and Inspection of Systems	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
8. Monitor personnel and equipment present at start/shutdown to ensure proper support/safety.			(25)		96	96	(42)	98
9. Insert position of a target of interest, threat emitter, or of a navigation check point.	(62)	(13)	(37)		98	100	83	(33)
10. Align intertials in accordance with preflight procedures.	98	92	86	(80)	(86)			
11. Monitor engine instruments during start and engine run-up.					97	100		45
12. Ensure that all programs are loaded and initiated.	75		97	(13)	(31)	(75)	100	
13. Plot, record and/or insert into the system or on the DRT the positions, courses, and speeds of known friendly/unfriendly forces in the operating area.		91	97					
14. Ensure that the magnetic tape recorder is loaded, activated, annotated and working properly.		97	97	(20)	(27)	(50)	56	

Table XXXV

Per Cent of Fleet Performing Preparation and Inspection of System Tasks

ROLE VI : Assessor of Systems		NFO POSITIONS							
DUTY A : Preparation and Inspection of Systems	1	2	3	4	5	6	7	8	
	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4	
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RJO	
TASK:									
15. Assist and challenge pilot on front cockpit checks on A-A and A-G weapons to insure proper procedures are carried out.					93				97
16. Insert ZULU time, current data, and position for system initiation.	95		80			(25)			
17. Insert present position and altitude for system initiation.	(100)		(37)	(80)	99	100	(21)	(13)	
18. Record or insert into the system the ordnance that is loaded in all launcher tubes.		76	97		(13)				
19. Activate and check flight recorder for initial data.		(13)				22			
20. Insert current position for data link initiation.	(62)		(25)				91		
21. Insert controlled aircraft (intercept, ASW, etc.) weapon/ordnance inventory into the system.							94		
22. Insert alignment information (manual/SINS) system initiation.				100	(81)				

Table XXXV

Per Cent of Fleet Performing Preparation and Inspection of System Tasks

ROLE VI : Assessor of Systems	NFC POSITIONS							
	1	2	3	4	5	6	7	8
DUTY A : Preparation and Inspection of Systems	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
23. Check GO/NO-GO status of IR system.				100	(45)			
24. Ensure that all required Pod and Chaff loads are complete and onboard.				(46)	(50)	96		(30)
25. Insure that the weapon loads have been properly fused and loaded safely and securely.		(33)	(25)					(50)
26. Assess weapon load and launcher tube inventory errors that are detected by the computer during weapon/search stores inventory initiation.								

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Table XXXVI

Per Cent of Fleet Performing System Status Assessment Tasks

ROLE VI : Assessor of Systems		NFO POSITIONS							
DUTY	B : Assess System Status	1	2	3	4	5	6	7	8
	P-3C	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
1.	Record and report equipment and system faults to proper maintenance personnel.	98	100	96	100	100	96	100	98
2.	Monitor and assess operating status of the navigation systems.	98	91	84	100	100	93	(28)	(53)
3.	Monitor and assess status of navigation equipment.	98	76	97	100	(77)	(50)	83	94
4.	Monitor and assess status of communication equipment.	98	(33)	97	100	(77)	(75)	100	99
5.	Assess feasibility of mission completion and the commencement of an alternate mission in case of degradation in the system.		(26)	(50)	100	99	93	94	90
6.	Manipulate circuit breakers during certain circumstances (such as emergencies, isolation of faults, deactivation of the system, and trouble-shooting the system).	(50)	(46)	(75)	100	96	93	86	96
7.	Monitor and assess pilot warning light panel during section takeoff, rendezvous, etc.; and advise pilot of any system failure/malfunction.				100	98	89		38

Table XXXVI

Per Cent of Fleet Performing System Status Assessment Tasks

ROLE VI : Assessor of Systems	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Assess System Status	P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
	N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:								
8. Perform minor troubleshooting tasks related to the tactical sensors.		94	92	(73)	98	(50)	(28)	(20)
9. Perform troubleshooting tasks on the tactical jamming system.					(13)	100		
10. Determine hung weapon stores.		74	70		82			(30)
11. Reload the program after a computer power failure or an equipment failure, and extract automatically the most recent safe data recorded on the storage drums or magnetic tape for re-entry into the program.	38		86				46	
12. Monitor and assess status of nonacoustic/acoustic sensor equipment.		100	95			(25)	(14)	
13. Determine which buoys were released that failed to light off or indicate a reliable signal.		99	92					
14. Monitor and assess status of magnetic tapes.		96	95				(35)	
15. Ensure that necessary system/equipment tests are performed by the crewmembers and NAV in order to maintain an effective weapon system.		97	97				(14)	

Table XXXVI

Per Cent of Fleet Performing System Status Assessment Tasks

ROLE VI : Assessor of Systems	NFO POSITIONS							
	1	2	3	4	5	6	7	8
DUTY B : Assess System Status	P-3C N/C	P-3B TACCO	P-3C TACCO	RA-5 RAN	A-6 B/N	EA-6 ECMO	E-2 CICO	F-4 RIO
TASK:								
16. Assess defective pressurized launch tubes caused by either a defective buoy, smoke, or tube.		87	97					
17. Monitor and assess status of radar system.		(33)	(25)	98	(59)		100	(60)
18. Perform recovery procedures after either a computer power failure, an equipment failure, or a program malfunction.	72		97	(13)	(54)	(75)	(64)	
19. Monitor and assess status of ECM equipment.		(33)	(37)	98	(63)	(100)	(21)	98
20. Assess status of attitude and heading repeating systems.	(37)	(13)	(37)	(13)	99	93	(14)	(23)
21. Monitor and assess aircraft warning and caution lights on the instrument panel.				(40)	100	96		(40)
22. Monitor and assess status of reconnaissance system.				98	(18)			
23. Perform minor troubleshooting tasks related to the navigational and reconnaissance system.		(33)	(50)	75	(40)		(14)	
24. Monitor and assess ordnance and armament system logic.			(75)		100			

Table XXXVI

Per Cent of Fleet Performing System Status Assessment Tasks

ROLE VI : Assessor of Systems		NFO POSITIONS							
DUTY	B : Assess System Status	1	2	3	4	5	6	7	8
		P-3C	P-3B	P-3C	RA-5	A-6	EA-6	E-2	F-4
		N/C	TACCO	TACCO	RAN	B/N	ECMO	CICO	RIO
TASK:									
25.	Monitor and assess the tactical jamming system for appropriate system operation.						100		
26.	Report system design deficiencies to appropriate agencies via chain of command.	(25)	(26)	(62)	(20)	(63)	96	(64)	(16)
27.	Recommend system design improvement or innovations to appropriate agencies via the chain of command.	(25)	(20)	(62)	(26)	(68)	89	(64)	(26)
28.	Assess limitations of own aircraft due to system malfunctions and initiate request for assistance/augmentation by other units.		(33)	(50)	(26)	(59)	78	(64)	(33)
29.	Determine ordnance and weapon status.		(46)	(62)		(72)			(40)
30.	Monitor status of data link.	(75)		(75)		(31)		100	(50)
31.	Isolate and record faults in parachute and survival equipment.	(37)	(33)	(50)	(40)	(36)	(75)	89	(30)
32.	Utilize inflight tests to troubleshoot faults in sensors and displays.	(37)	(13)	(50)	(80)		(75)	(78)	(36)

APPENDIX A
Instructions for Completing the NFO
Position Commonality Inventory

INSTRUCTIONS FOR COMPLETING THE NFO COMMONALITY INVENTORY

1. This inventory is a compendium of operational tasks that are conceivably performed by one or more NFO communities (viz., P-3C NAVCOM, P-3B TACCO, P-3C TACCO, RA-5 RAN, A-6 B/N, EA-6 ECMO, E-2 CICO, F-4 RIO). The determination of which NFO communities perform a particular task and which do not is not complete. Your responses to this inventory will be a basis for that determination.
2. This inventory has been broken down into roles, duties and tasks. Each task should be interpreted within the context of its role/duty.
3. You will note that alongside of each task there may exist an x (s). An x means that particular task has already been identified as being performed by the NFO community (ies) under which the x exists. When there already exists an x alongside a task under your NFO community column simply skip over and go to the next task.
4. If there is no x in your NFO community column alongside a task that you think your NFO community does conceivably perform then place a check (✓) in that space. If, however, you feel that task is not conceivably performed by your community, then leave it blank. In other words, your task is to look for omissions, of which there may be many.