(12)

DEPARTMENT OF THE NAVY
JUSTIFICATION OF ESTIMATES
FOR FISCAL YEAR 1985

AD A139226

SUBMITTED TO CONGRESS FEBRUARY 1984

DTIC ELECTE MAR 2 1 1984 S D E

PROCUREMENT

DTIC FILE COPY

AIRCRAFT PROCUREMENT, NAVY

Approved for Public Release
Distribution unlimited

84 03 16 010

Department of the Navy
Aircraft Procurement, Navy
Justification of Estimates for Fiscal Year 1985 and Fiscal Year 1986

TABLE OF CONTENTS

Intd to include:

	Page No.
Budget Appendix Extract	1-1
Budget Activity Descriptions and Justifications:	
Activity 1 - Combat Aircraft	2-1
Activity 2 - Airlift Aircraft	2-8
Activity 3 - Trainer Aircraft	2-10
Activity 4 - Other Aircraft	2-12
Activity 5 - Modification of Aircraft	2-13
Activity 6 - Aircraft Spares and Repair Parts	2-33
Activity 7 - Aircraft Support Equipment and Facilities	2-39
Comparison of Program Requirements and Financing	3-1
Status of Aircraft Modification Programs	4-1
Aircraft Modification Back-up Data	5-1

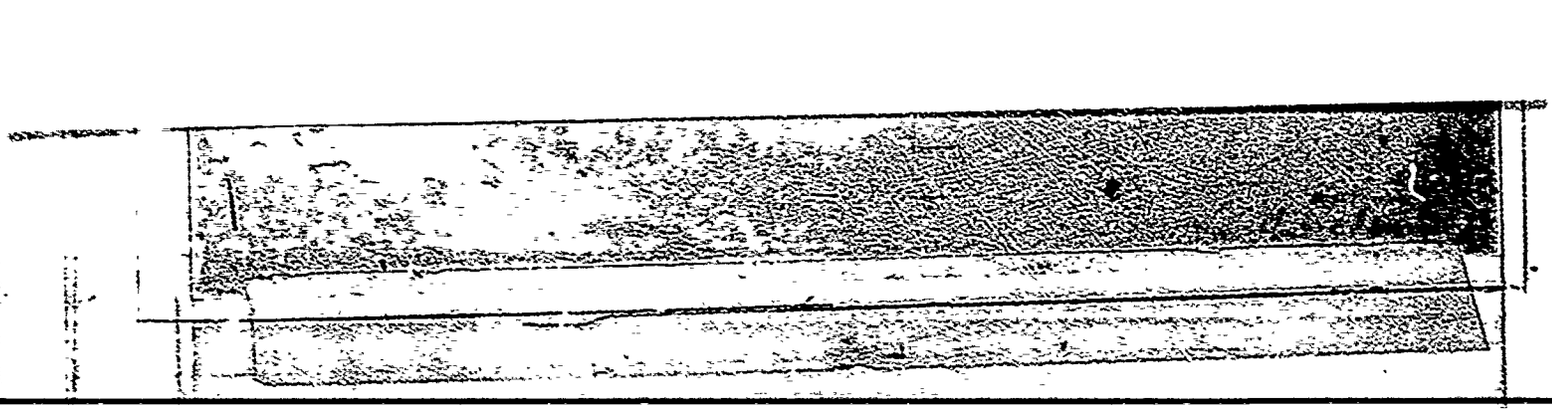
Accession For
NTIS GRA&I [X]
DTIC TAB [ ]
Unannounced [ ]
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or Special
A-1

AIRCRAFT PROCUREMENT, NAVY

For construction, procurement, production, modification, and modernization of aircraft, equipment including ordnance, spare parts, and accessories therefor; specialized equipment; expansion of public and private plants, including the land necessary therefor, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title [as required by section 355, Revised Statutes, as amended]; and procurement and installation of equipment, appliances, and machine tools in public and private plants; reserve plant and Government and contractor-owned equipment layaway; [$10,174,608,000] $11,474,200,000 to remain available for obligation until September 30, [1986] 1987. (10 U.S.C. 5012, 5031, 7201, 7241; Department of Defense Appropriation Act, 1984; additional authorizing legislation to be proposed.)

Financing

The FY 1985 budget plan of $11,474,200,000 for the Aircraft Procurement, Navy appropriation is to financed by new obligational authority. THe FY 1986 authorization plan of $12,822,455,000 will also be financed by new obligation authority.



1506n Aircraft Procurement, Navy
Program and Financing (in Thousands of dollars)

01 Feb 84
FISCAL YEAR 1981

Identification code 17-1506-0-1-051	Budget Plan (amounts for actions programed)			Obligations		
	1983 actual	1984 est.	1985 est.	1983 actual	1984 est.	1985 est
Program by Activities						
Direct Program:						
1. Combat aircraft				126,989		
2. Airlift aircraft				197		
3. Trainer aircraft				9,352		
4. Other aircraft				6,362		
5. Modification of aircraft				18,857		
6. Aircraft spares and repair parts				8,054		
7. Aircraft support equipment and facili				5,466		
Total direct program				175,277		
Financing:						
Offsetting collections from:						
11.0001 Adjustment to prior year federal fund or				1,883		
13.0001 Adjustment to prior year FMS trust fund				31		
14.0001 Adjustment to non-federal sources				-27		
17.0001 Recoveries of prior year obligations(-)				-6,632		
Unobligated balance available, start of year						
21.4002 For completion of prior year budget plans				-347,406		
21.4007 Reprograming from or to prior year budget pl	-176,875					
25.0001 Unobligated balance lapsing	176,875			176,875		
39.0001 Budget authority						

1506n Aircraft Procurement, Navy
Program and Financing (in Thousands of dollars)

01 Feb 84
FISCAL YEAR 1982

Identification code 17-1506-0-1-051	Budget Plan (amounts for actions programed)			Obligations		
	1983 actual	1984 est.	1985 est.	1983 actual	1984 est.	1985 est.
Program by Activities						
Direct Program:						
1. Combat aircraft				866,811	158,092	
2. Airlift aircraft				445	377	
3. Trainer aircraft				21,435	3,614	
4. Other aircraft				27,534	13,291	
5. Modification of aircraft				131,128	80,463	
6. Aircraft spares and repair parts				85,394	44,281	
7. Aircraft support equipment and facili				61,662	14,567	
Total direct program				1,194,409	314,685	
Reimbursable program				12,336	7,134	
10.0001 Total Obligations				1,206,745	321,819	
Financing:						
Offsetting collections from:						
11.0001 Adjustment to prior year federal fund or				-216		
13 0001 Adjustment to prior year FMS trust fund				810		
14 0001 Adjustment to non-federal sources				-6		
17 0001 Recoveries of prior year obligations(-)				-9,272		
Unobligated balance available, start of year						
21 4002 For completion of prior year budget plans				-1,519,861	-321,819	
21 4003 Available to finance new budget plans	-8,000			-8,000		
22.4001 Net unobligated balance transferred	8,000			8,000		
Unobligated balance available, end of year						
24.4002 For completion of prior year budget plans				321,819		
39.0001 Budget authority						

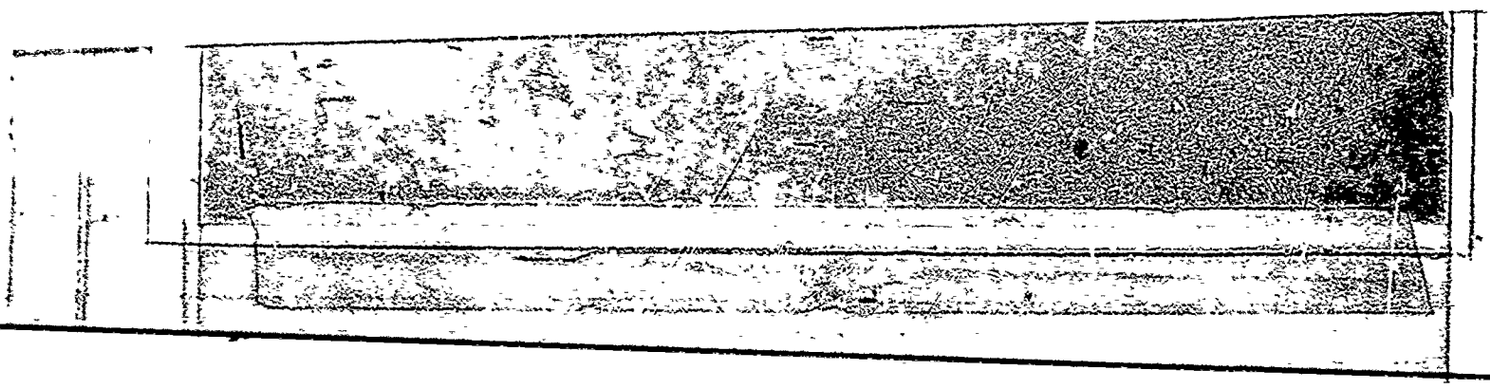
1506n Aircraft Procurement, Navy — 01 Feb 84
Program and Financing (In Thousands of dollars) — FISCAL YEAR 1985

Identification code 17-1506-0-1-051	Budget Plan (amounts for actions programmed)			Obligations		
	1983 actual	1984 est.	1985 est	1983 actual	1984 est.	1985 est
Program by Activities						
Direct Program:						
1. Combat aircraft	6,207,167			4,542,464	1,274,708	389,995
2. Airlift aircraft	278,544			255,792	13,448	9,304
3. Trainer aircraft	50,333			44,030	6,015	280
4. Other aircraft	75,750			40,496	27,162	8,092
5 Modification of aircraft	1,160,933			837,736	285,180	38,017
6. Aircraft spares and repair parts	1,959,214			1,770,009	143,901	45,304
7. Aircraft support equipment and facili	423,511			358,890	47,747	16,874
Total direct program	10,155,452			7,849,417	1,798,161	507,874
Reimbursable program	35,556			4,579	29,087	1,890
10.0001 Total Obligations	10,191,008			7,853,996	1,827,248	509,764
Financing:						
Offsetting collections from:						
11 0001 Federal funds(-)	-23,437			-23,437		
13.0001 Trust funds(-)	-11,926			-11,926		
14.0001 Non-federal sources(-)	-193			-193		
Unobligated balance available, start of year						
2? 4002 For completion of prior year budget plans					-2,337,012	-509,764
21 1003 Available to finance new budget plans		-28,000			-28,000	
22.4001 Net unobligated balance transferred		28,000			28,000	
Unobligated balance available, end of year						
24 4002 For completion of prior year budget plans				2,337,012	509,764	
24.4003 Available to finance subsequent year budg?	28,000			28,000		
39 0001 Budget authority	10,183,452			10,183,452		
Budget authority:						
40.0001 Appropriation	10,416,107			10,416,107		
40.0002 Reduction pursuant to P.L. 97-377	-59,100			-59,100		
41.0001 Transferred to other accounts(-)	-173,555			-173,555		
43.0001 Appropriation (adjusted)	10,183,452			10,183,452		

1506n Aircraft Procurement, Navy
Program and Financing (In Thousands of dollars)

01 Feb 84
FISCAL YEAR 1984

Identification code 17-1506-0-1-051	Budget Plan (amounts for actions programed) 1983 actual	1984 est	1985 est.	Obligations 1983 actual	1984 est	1985 est.
Program by Activities						
Direct Program:						
1 Combat aircraft		6,026,598			4,819,141	695,909
2. Airlift aircraft		180,008			152,129	42,595
3 Trainer aircraft		64,432			52,600	14,727
4. Other aircraft		165,066			112,325	31,450
5 Modification of aircraft		1,352,297			1,020,310	303,335
6. Aircraft spares and repair parts		1,963,199			1,677,095	377,347
7. Aircraft support equipment and facili		413,008			306,086	61,218
Total direct program		10,164,608			8,139,686	1,526,581
Reimbursable program		40,000			24,000	4,110
10 0001 Total Obligations		10,204,608			8,163,686	1,530,691
Financing:						
Offsetting collections from:						
11.0001 Federal funds(-)		-26,300			-26,300	
13.0001 Trust funds(-)		-13,500			-13,500	
14.0001 Non-federal sources(-)		-200			-200	
Unobligated balance available, start of year						
21.4002 For completion of prior year budget plans						-2,040,922
Unobligated balance available, end of year						
24 4002 For completion of prior year budget plans					2,040,922	510,231
39 0001 Budget authority		10,164,608			10,164,608	
Budget authority:						
40 0001 Appropriation		10,174,608			10,174,608	
41 0001 Transferred to other accounts(-)		-10,000			-10,000	
43.0001 Appropriation (adjusted)		10,164,608			10,164,608	



1506n Aircraft Procurement, Navy
Program and Financing (in Thousands of dollars)

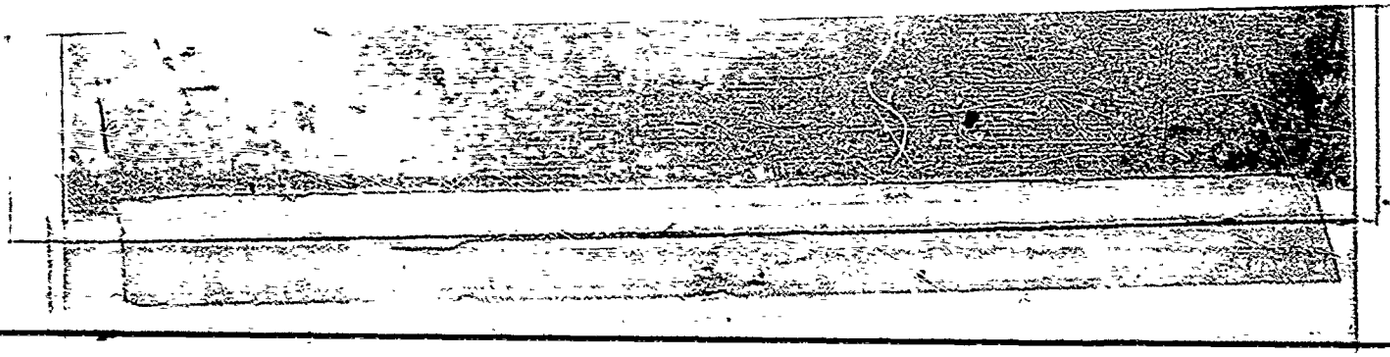
01 Feb 84
FISCAL YEAR 1985

Identification code 17-1506-0-1-051	Budget Plan (amounts for actions programed)			Obligations		
	1983 actual	1984 est	1985 est.	1983 actual	1984 est	1985 est.
Program by Activities						
Direct Program:						
1. Combat aircraft			6,823,819			5,369,362
2. Airlift aircraft			251,311			199,358
3. Trainer aircraft			91,155			138,566
5 Modification of aircraft			1,919,506			1,438,727
6 Aircraft spares and repair parts			1,609,734			1,415,317
7 Aircraft support equipment and facili			778,675			626,030
Total direct program			11,474,200			9,187,360
Reimbursable program			40,000			24,000
10.0001 Total Obligations			11,514,200			9,211,360
Financing:						
Offsetting collections from:						
11 0001 Federal funds(-)			-26,300			-26,300
14 0001 Trust funds(-)			-13,500			-13,500
14 0001 Non-federal sources(-)			-200			-200
Unobligated balance available, end of year						
24.4002 For completion of prior year budget plans						2,302,840
40.0001 Budget Authority (Appropriation)			11,474,200			11,474,200

1506n Aircraft Procurement, Navy
Program and Financing (in Thousands of dollars)

01 Feb 84
FYP SUMMARY

Identification code 17-1506-0-1-051	Budget Plan (amounts for actions programed) 1983 actual	1984 est.	1985 est.	Obligations 1983 actual	1984 est.	1985 est.
Program by Activities						
Direct Program.						
1 Combat aircraft	6,207,167	6,026,598	6,823,819	5,536,264	6,251,941	6,455,266
2. Airlift aircraft	278,544	180,008	251,311	256,434	165,954	251,257
3. Trainer aircraft	50,333	64,432	91,155	74,817	62,229	153,581
4. Other aircraft	75,750	165,066		74,392	152,778	39,542
5 Modification of aircraft	1,160,903	1,352,297	1,919,506	987,721	1,385,953	1,780,079
6. Aircraft spares and repair parts	1,959,214	1,963,199	1,609,734	1,863,457	1,865,277	1,837,968
7 Aircraft support equipment and fac	423,511	413,008	778,675	426,018	368,400	704,122
Total direct program	10,155,452	10,164,608	11,474,200	9,219,103	10,252,532	11,221,815
Reimbursable program	35,556	40,000	40,000	16,915	60,221	30,000
10.0001 Total Obligations	10 191,008	10,204,608	11,514,200	9,236,018	10,312,753	11,251,815
Financing:						
Offsetting collections from:						
11.0001 Federal funds(-)	-23,437	-26,300	-26,300	-21,770	-26,300	-26,300
13.0001 Trust funds(-)	-11,926	-13,500	-13,500	-11,085	-13,500	-13,500
14.0001 Non-federal sources(-)	-193	-200	-200	-226	-200	-200
17.0001 Recovery of prior year obligations(-)				-15,904		
Unobligated balance available, start of year						
21.4002 For completion of prior year budget pla				-1,867,287	-2,658,831	-2,550,686
21.4003 Available to finance new budget plans	-8,000	-28,000		-8,000	-28,000	
21.4007 Reprograming from or to prior year budget	-176,875					
22.4001 Net unobligated balance transferred	8,000	28,000		8,000	28,000	
Unobligated balance available, end of year						
24.4002 For completion of prior year budget pla				2,658,831	2,550,686	2,813,071
24.4003 Available to finance subsequent year bu	28,000			28,000		
25.0001 Unobligated balance lapsing	176,875			176,875		
39.0001 Budget authority	10,183,452	10,164,608	11,474,200	10,183,452	10,164,608	11,474,200
Budget authority:						
40.0001 Appropriation	10,416,107	10,174,608	11,474,200	10,416,107	10,174,608	11,474,200
40.0002 Reduction pursuant to P.L. 97-377	-59,100			-59,100		
41.0001 Transferred to other accounts(-)	-173,555	-10,000		-173,555	-10,000	
43.0001 Appropriation (adjusted)	10,183,452	10,164,608	11,474,200	10,183,452	10,164,608	11,474,200
Relation of obligations to outlays:						
71.0001 Obligations incurred, net				9,202,937	10,272,753	11,211,815
72.4001 Obligated balance, start of year				9,557,681	11,304,696	12,438,149
74.4001 Obligated balance, end of year				-11,304,696	-12,438,149	-13,914,964
77.0001 Adjustments in expired accounts				49,906		
78.0001 Adjustments in unexpired accounts				-15,904		



1509n Aircraft Procurement, Navy
Program and Financing (in Thousands of dollars)

01 Feb 84

Identification code 17-1506-0-1-051	1983 actual	1984 est.	1985 est.
90.0001 Outlays	7,489,924	9,139,300	9,735,000

1506n Aircraft Procurement, Navy
Object Classification (in Thousands of dollars)

01 Feb 84

Identification code 17-1506-0-1-051		1983 actual	1984 est.	1985 est
	Direct obligations			
12 1002	Purchases from industrial funds	18,437	27,402	27,402
12 6001	Supplies and materials	1,309,256	1,644,135	1,644,135
13.1001	Equipment	7,891,410	8,580,995	9,550,278
19 9001	Total Direct obligations	9,219,103	10,252,532	11,221,815
	Reimbursable obligations.			
22 6001	Supplies and materials	3,286	9,983	10,000
23 1001	Equipment	13,629	50,238	20,000
29.9001	Total Reimbursable obligations:	16,915	60,221	30,000
99 9901	Total Obligations	9,236,018	10,312,753	11,251,815

Budget Activity 1: Combat Aircraft

(In Thousands)
FY 1986 Estimate - $7,132,546
FY 1985 Estimate - $6,823,819
FY 1984 Estimate - $6,026,598
FY 1983 Actual - $6,207,167

Purpose and Scope of Work

Navy and Marine Corps combat aircraft are procured under this budget activity. These aircraft include fixed-wing and rotary configurations and are grouped generally into the categories of attack, fighter, and anti-submarine warfare. In addition to these general categories, aircraft which directly support combat operations in specialized missions, such as aerial assault, command and control, search and rescue, reconnaissance, observation, electronic warfare, airborne mine countermeasures, vertical onboard delivery and early warning are also procured in this budget activity. Funds are budgeted to procure fully equipped aircraft, including engines and avionics equipment, special ground support and training equipment, and technical publications.

Advance procurement funds are also included to finance long lead time effort, materials, and equipments for the following year program, as well as for multiyear procurement of the CH-53E airframe.

Justification of Funds

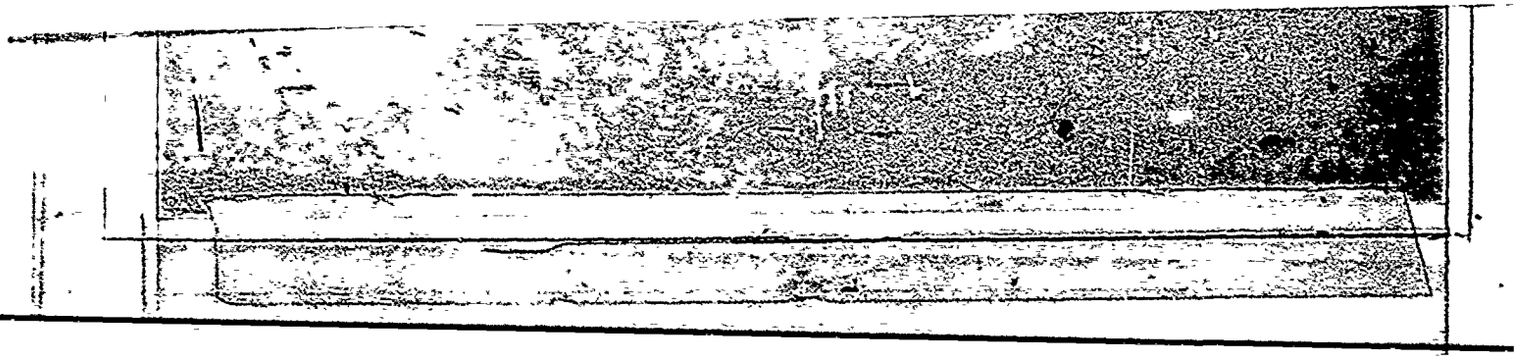
Funds for procurement of twelve different combat aircraft models, including two attack, one fighter, one strike fighter, five helicopter, one patrol, one electronic warfare and one early warning type are either budgeted in FY 1985 or requested for authorization in FY 1986. Funds are also included in this budget request for FY 1985 advance procurement requirements for aircraft scheduled for procurement in FY 1986 and for multiyear procurement. The amounts shown below finance: (1) aircraft procurement; (2) advance procurement which is justified separately at the end of the budget activity; and (3) aircraft initial spares and repair parts which are budgeted and justified in budget activity 6.

A-6E (Attack) INTRUDER

(Dollars in Millions)

	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	6	214.6	-	98.1
Initial Spares		43.3		41.8

The A-6E is a highly effective attack aircraft. It is equipped with the Target Recognition Attack Multisensor (TRAM) system which gives the A-6E the capability of very accurate night/all weather delivery of nuclear and non-nuclear weapons as well as a night surveillance and identification capability. The FY 1985 request continues procurement of tactical attack aircraft for the Navy and Marine Corps. In FY 1986 authorization is requested for line shutdown and support costs.



EA-6B (Electronic Warfare) PROWLER

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	6	361.0	6	294.8
Advance Procurement		18.6		19.7
Initial Spares		16.2		17.3

The carrier-based EA-6B is an advanced electronic warfare aircraft which provides protection to Navy strike aircraft by jamming enemy radar-controlled weapons. Six aircraft are requested in FY 1985, and authorization is requested for six more in FY 1986. This continues the procurement of modern tactical EW aircraft for the Navy and Marine Corps.

AV-8B (Attack) HARRIER

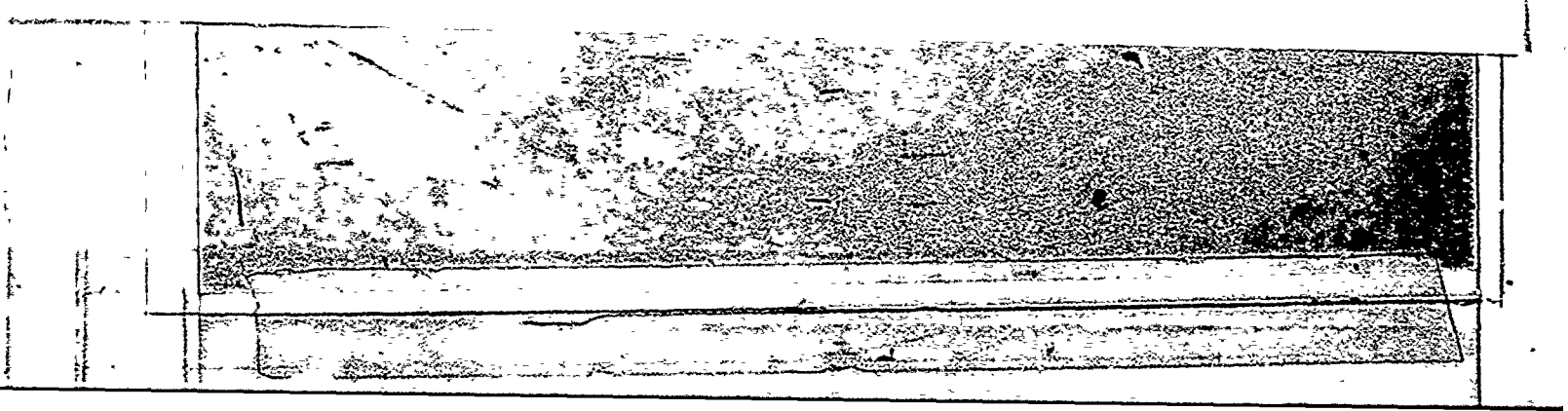
	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	32	742.2	46	918.9
Advance Procurement		80.4		94.3
Initial Spares		117.2		100.9

The AV-8B is an improved vectored thrust V/STOL aircraft based on the AV-8A concept and the Pegasus 11 engine which has up to twice the range or payload of the older HARRIER. It combines aerodynamic improvements with a new stability augmentation system to reduce pilot workload, incorporates the Angle Rate Bombing System for increased weapon delivery accuracy, thus providing a more capable and reliable light attack aircraft. The AV-8B meets the Marine Corps' requirement for a light attack aircraft which can operate from austere forward sites in direct support of ground forces.

The FY 1985 request of $742.2 million is for 32 aircraft, and authorization is requested for procurement of 46 aircraft in FY 1986.

F-14A (Fighter) TOMCAT

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	24	786.9	24	869.1
Advance Procurement		190.0		100.0
Initial Spares		8.9		25.2



The F-14A is a high performance, fleet air defense/air superiority fighter. It is a two-place, tandem seat, variable sweep wing, supersonic, carrier-based airborne weapons system. The F-14A has visual attack and all-weather capability to deliver PHOENIX and SPARROW missiles using the AN/AWG-9 weapons control system. It also employs the M-61 gun and SIDEWINDER missiles for close-in air-to-air combat. The FY 1985 budget request includes $786.9 million for procurement of 24 F-14A aircraft, and authorization is requested to procure 24 aircraft in FY 1986. This will continue an orderly Navy fighter modernization program and maintain fighter force levels.

F/A-18 (Strike Fighter) HORNET

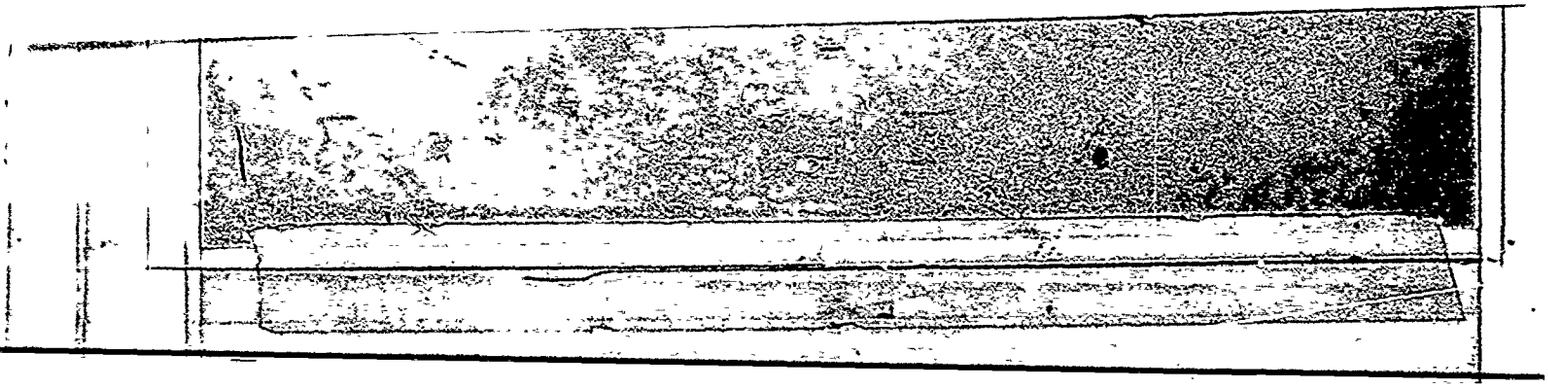
	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	84	2,348.1	102	2,499.0
Advance Procurement		337.9		362.6
Initial Spares		111.6		63.5

The F/A-18 is a single-seat, twin-engine, carrier-based, multi-mission tactical aircraft that can be configured for fighter or attack missions. Employing the SPARROW and SIDEWINDER missiles and the M-61 gun, it will be a lower cost complement to the F-14A and will be the Navy's primary fighter for tactical air power projection. The F/A-18 will replace aging F-4 and A-7 aircraft. The total programed procurement of F/A-18 aircraft is 1,377, including 11 RDT&E aircraft.

CH-53 (Helicopter) SUPER STALLION (MYP)

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	10	223.3	14	266.8
Advance Procurement		69.6		39.4
Initial Spares		27.6		25.5

The CH-53 is a heavy transport helicopter for use by both the Marine Corps and the Navy. Marine Corps missions include the lift of heavy equipment and cargo from ship to shore in the amphibious assault, the lift of equipment and supplies during tactical operations ashore, and the tactical recovery of disabled aircraft and equipment. Navy missions include vertical onboard delivery (VOD) and Airborne Mine Countermeasures (AMCM). Production of the MH-53E variation of the CH-53 commences in FY 1985. The MH-53E will have significantly enhanced AMCM capability over the presently deployed RH-53D. AMCM-associated improvements will also enhance the aircraft's capability to perform utility and special missions by significantly increasing range and navigation capability. Several MH-developed aircraft improvements will also be incorporated in the CH version beginning in FY 1986. Budget authority is requested for ten helicopters at a cost of $223.3 million in FY 1985, and authorization is requested for the procurement of fourteen helicopters in FY 1986. The CH-53 airframe is slated for multiyear procurement, beginning with FY 1985 advance procurement for the FY 1986 lot and continuing through FY 1989 at a savings of $129.3 million.



AH-1T (Helicopter) SEA COBRA

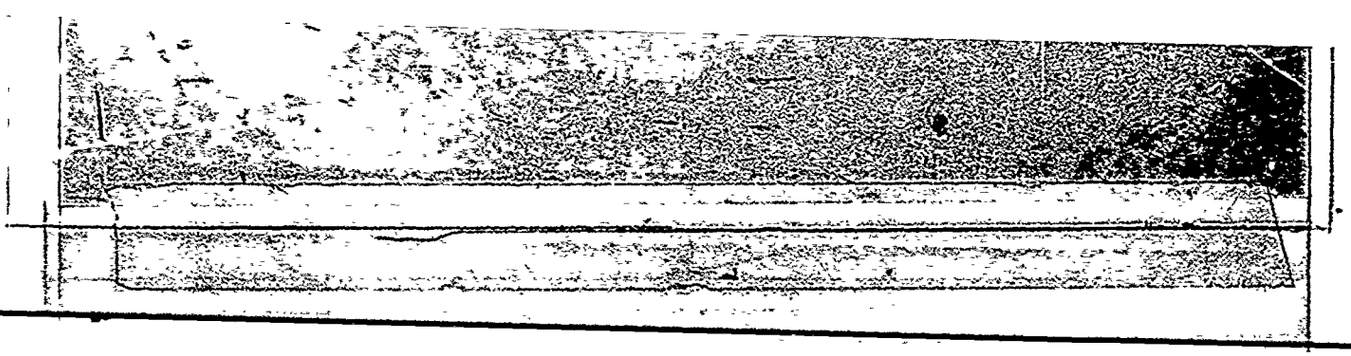
	(Dollars in Millions) FY 1985 Qty	FY 1985 Amt	FY 1986 Qty	FY 1986 Amt
Procurement	22	178.0	22	202.3
Advance Procurement		15.0		-
Initial Spares		21.4		4.5

The AH-1T helicopter is an improved version of the Marine AH-1J, which incorporates an uprated twin-pack engine (T700-GE-401) for increased performance, reliability and hot day performance. It has a TOW missile capability, a 20mm nose-mounted turret gun, a wing stores armament management system for selective release of externally carried weapons and a HELLFIRE missile system. The improved SEA COBRA is 58 feet in overall length and the rotor diameter is 48 feet. Maximum take-off weight is 14,000 pounds. The AH-1T mission is escort and protection of troop assault helicopters, landing zone preparation immediately prior to the arrival of assault helicopters, landing zone fire suppression during the assault phase, and fire support during ground escort operations. Twenty-two AH-1T helicopters are requested in FY 1985, and authorization is requested for procurement of 22 additional helicopters in FY 1986.

SH-60B (Anti-Submarine Warfare Helicopter) SEAHAWK

	(Dollars in Millions) FY 1985 Qty	FY 1985 Amt	FY 1986 Qty	FY 1986 Amt
Procurement	18	333.2	18	321.4
Advance Procurement		52.4		54.9
Initial Spares		95.7		6.6

The SH-60B SEAHAWK is the air sub-system of the Light Airborne Multi-Purpose System (LAMPS) MK III ship/air weapon system. LAMPS MK III is a computer integrated ship/helicopter system that increases the effectiveness of combatants for Anti-Submarine Warfare (ASW). The helicopter provides a remote platform for deployment of sonobuoys and torpedoes, processing of acoustic and Magnetic Anomaly Detection (MAD) sensor information, and an elevated platform for radar and Electronic Warfare Support Measures (ESM). The ship provides sensor processing, command and control, integration of LAMPS information gained from other sensors, the landing and traversing system, visual landing aids, and maintenance and support facilities for the aircraft. SH-60B secondary missions include Anti-Ship Surveillance and Targeting (ASST), search and rescue (SAR), vertical replenishment (VERTREP), medical evacuation (MEDEVAC) and communications (COMM) relay. The SH-60B carries a crew of three, approximately 2,000 lbs of mission avionics, and has provisions for sonobuoys and MK-46 torpedoes. The SH-60B has a mission gross take-off weight of about 20,000 lbs. Budget authority of $333.2 million in FY 1985 is requested for the procurement of 18 helicopters, and authorization is requested for procurement of 18 in FY 1986.



CV ASW HELO (Helicopter)

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	-	-	-	111.9
Initial Spares		-		3.6

Authorization is requested for $111.9 million in FY 1986 to initiate procurement for an upgraded CV inner zone anti-submarine warfare helicopter which is needed to modernize aging CV assets.

P-3C (Patrol) ORION

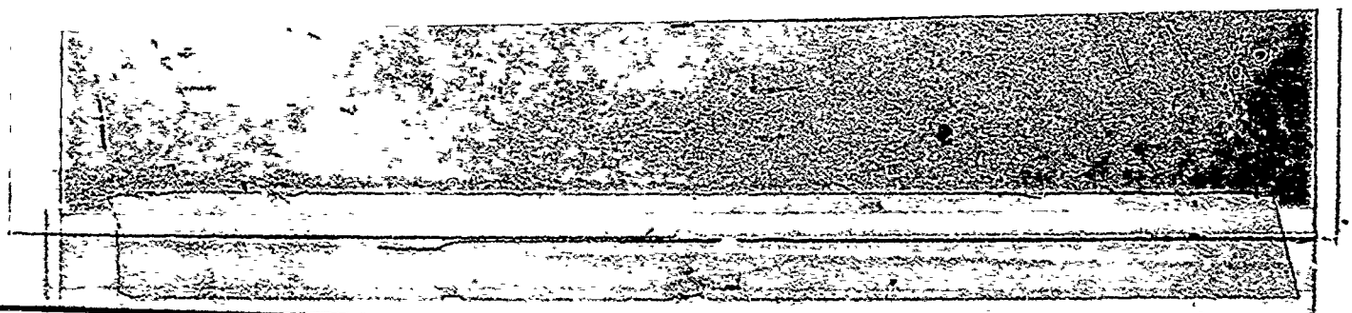
	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	9	378.9	9	410.6
Advance Procurement		86.1		92.6
Initial Spares		18.3		10.0

The P-3C aircraft is a land-based, four-engine, turboprop patrol aircraft. Its primary mission is anti-submarine warfare (ASW): to detect, classify, track, localize, and destroy submarines; to conduct long range barrier patrols, to escort convoys, and to conduct hunter-killer operations in all weather conditions. Secondary missions are aerial mining, maritime surveillance, shipping destruction, and intelligence collection.

The P-3C ASW systems include data processing, radar, infrared detection set (IRDS), HARPOON, Sonobuoy Referencing System (SRS), electronic support measures (ESM), and magnetic anomaly detection (MAD) equipment. The tactical system includes integrated displays and an inertial doppler navigator. The central digital computer has the data handling capacity and flexibility to thoroughly integrate sensor, display, navigation, communications, and armament equipment information. Budget authority of $378.9 million is requested for nine aircraft in FY 1985, and program authorization of $410.6 million is requested for nine aircraft in FY 1986.

E-2C (Early Warning) HAWKEYE

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	6	312.2	6	338.9
Advance Procurement		29.6		31.3
Initial Spares		23.2		19.7

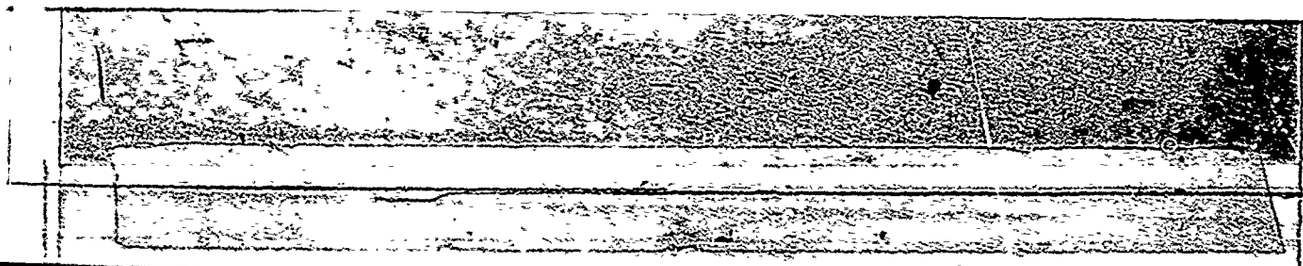


The E-2C is a carrier-based airborne early warning/command and control system designed for fleet air defense. Additionally, it provides the battle group commander with a strike control and surveillance capability. The E-2C has the same airframe as earlier models but is equipped with new avionics equipment, including a new radar antenna and passive detection system. This equipment provides an improved capability, including overland detection of air targets. A major feature of the system is the greatly enhanced reliability over previous models. Six E-2C aircraft at a cost of $312.2 million are scheduled for procurement in FY 1985. Authorization is also requested for procurement of six E-2C aircraft at a budgeted cost of $338.9 million in FY 1986.

SH-2F (Helicopter) SEASPRITE

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	6	65.9	-	5.9
Initial Spares		4.1		-

The SH-2F is a two-place, twin-engine helicopter with a single main-lift rotor and anti-torque tail rotor. It is the air subsystem of the LAMPS MK I weapons system, deployed aboard FF1040 and FF1052 class frigates for anti-submarine warfare. The SH-2F has secondary missions that include SAR, MEDEVAC, and communications relay. The FY 1985 budget includes $65.9 million for procurement of six SH-2F helicopters, and authorization of $5.9 million is requested for additional support requirements in FY 1986.



Advance Procurement

The FY 1985 budget request includes $879.6 million for advance procurement of material and effort for FY 1986 and for multiyear procurement associated with the CH-53 airframe. Authorization is requested for FY 1986 advance procurement requirements, totalling $794.8 million, in support of FY 1987 and multiyear procurement. An itemization of the requirements follows:

(Dollars in millions)	FY 1986		FY 1987	
Aircraft Model	A/C Qty	A. P. in FY 85	A/C Qty	A. P. in FY 86
EA-6B	6	$ 18.6	6	$ 19.7
AV-8B	46	80.4	47	94.3
F-14	24	190.0	12	100.0
F/A-18	102	337.9	120	362.6
CH-53	14	69.6	14	39.4
AH-1T	22	15.0	-	-
SH-60B	18	52.4	18	54.9
P-3C	9	86.1	9	92.6
E-2C	6	29.6	6	31.3

The advance procurement listed is required to ensure timely delivery of the planned FY 1986 and FY 1987 aircraft. The amounts budgeted for CFE items, engines and some major GFE items are required for long leadtime effort and material for the prime contractor and their vendors. This includes items such as castings, forgings, landing gear and production engineering requirements. For most GFE, requirements are calculated for each item of equipment, considering the planned aircraft quantity, production leadtime, and prime contractor installation leadtime (i.e., the amount of time the item is needed at the factory prior to aircraft delivery). Certain equipments, primarily avionics items, are budgeted as advance procurement to ensure meeting planned aircraft production schedules.

In addition to conventional advance procurement requirements, the CH-53 advance procurement includes funds for multiyear procurement of the airframe through FY 1989. Of the advance procurement funding in FY 1985, $22.6 million will fund FY 1986 procurement and the remaining $47.0 million will be for FY 1987 through FY 1989. Of the advance procurement in FY 1986, $16.4 million is for FY 1987 and the remaining $23.0 million is for FY 1988 and FY 1989 multiyear procurement.

Budget Activity 2: Airlift Aircraft

(In Thousands)

FY 1986 Estimate - $228,854
FY 1985 Estimate - $251,311
FY 1984 Estimate - $180,008
FY 1983 Actual - $278,544

Purpose and Scope of Work

This budget activity provides for the procurement of fleet tactical support aircraft needed to fulfill the Navy's airlift support requirements.

Justification of Funds

Funds are requested in FY 1985 for procurement of eight C-2A, Carrier on Board Delivery (COD) aircraft under a multiyear contract. Advance procurement funds are requested in FY 1985 for the procurement of the additional C-2A aircraft covered under this multiyear plan. In FY 1985, authority is also requested for procurement of used C-9 aircraft and twelve UC-12 aircraft. The quantity of used C-9 aircraft to be procured will be dependent upon then existing market conditions. In FY 1986, authorization is requested for twenty-four UC-12 aircraft, and eight C-2A aircraft. Authorization is also requested to cover advance procurement for subsequent C-2A buys.

C-9B

(Dollars in Millions)

	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	1/	$33.9	-	-
Initial Spares		6.1		-

The C-9 is a commercial land-based aircraft configured to carry cargo and/or personnel.

Funds are requested in FY 1985 to procure used C-9 aircraft in order to meet organic, time-sensitive airlift requirements. The quantity of used C-9 aircraft to be procured will be dependent upon market conditions in existence at the time of procurement.

1/ To be determined (2 to 6 used aircraft)

UC-12B

	(Dollars in Millions) FY 1985 Qty	FY 1985 Amt	FY 1986 Qty	FY 1986 Amt
Procurement	12	32.0	24	$67.0

The UC-12B is a commercial land-based aircraft. It is a turbine powered FAA certified aircraft weighing 12,500 lbs. with a capacity to carry 8 passengers. The UC-12B will provide safe, reliable personnel transport and essential resupply missions, thus replacing a variety of outmoded aircraft currently performing that function. Funds are requested in FY 1985 to procure twelve of these aircraft, while in FY 1986 authorization is requested to procure twenty-four aircraft. Of the total UC-12 requirement of 114 production aircraft, sixty-six aircraft have already been procured; another twelve aircraft are scheduled for procurement in FY 1985, twenty-four in FY 1986 and the final twelve in FY 1987.

C-2A (Greyhound) (MYP)

	(Dollars in Millions) FY 1985 Qty	FY 1985 Amt	FY 1986 Qty	FY 1986 Amt
Procurement	8	$144.2	8	$126.6
Advance Procurement		41.2		35.2
Initial Spares		13.4		.5

The C-2A is a twin turboprop personnel/cargo transport type aircraft, capable of all weather carrier operations. The internal payload configuration is variable, allowing combinations of passengers (28 maximum), MEDEVAC litters (12 maximum), aircraft engines, repair parts, and other high priority cargo.

The C-2 aircraft mission is to provide rapid Carrier On-Board Delivery (COD) of fleet essential supplies, repair parts, and personnel to deployed carrier battle groups as required to sustain at-sea operations.

The thirty-nine aircraft for the C-2A program are being procured by a multiyear procurement contract. Budget authority for $144.2 million is requested in FY 1985 for the third procurement increment of eight aircraft. In FY 1986 authorization is requested for the fourth increment of eight aircraft at a cost of $126.6 million. The final increment of nine aircraft will be procured in FY 1987.

Advance Procurement

$41.2 million is requested in FY 1985 for advance procurement of material and effort for multiyear procurement of the C-2 aircraft. The C-2 airframe was chosen for multiyear procurement because it satisfied selection criteria for stability of requirement, funding and configuration; confidence in cost and contractor capability; and savings to the Government. In FY 1986, an additional $35.2 million is requested for authorization.

Budget Activity 3: Trainer Aircraft

(In Thousands)

FY 1986 Estimate - $241,000
FY 1985 Estimate - $ 91,155
FY 1984 Estimate - $ 64,432
FY 1983 Actual - $ 50,333

Purpose and Scope of Work

The Naval Air Training Command needs aircraft specifically designed for aircrew training in order to provide the Navy, Marine Corps, and Coast Guard with well trained and highly skilled pilots, navigators, and aircrew. Aircraft procured under Budget Activity 3 are used to train students in basic and advanced flying techniques, navigation, instrument flying and numerous other skills required before the transition to high performance fleet aircraft.

Justification of Funds

Funds are requested in FY 1985 for procurement of eight ADVERSARY aircraft and thirty-six TH-57 helicopters. In FY 1986 authorization is requested for one hundred fourteen T-34C aircraft and twelve ADVERSARY aircraft.

T-34C (Trainer) MENTOR

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	-	-	114	$125.4

The T-34 is a single engine, turboprop training aircraft.

The mission of the T-34 is to train student aviators in primary flight techniques. In FY 1986 authorization is requested to procure one hundred fourteen T-34 aircraft. The T-34 total program is 449 aircraft, including two procured with RDT&E,N funds. In FY 1984 and prior, 335 aircraft will have been procured. The balance of 114 aircraft is planned for procurement in FY 1986.

ADVERSARY (Trainer)

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	8	$66.8	12	$115.6
Initial Spares	-	6.3	-	13.9

The Navy will select a high performance supersonic tactical fighter as an adversary aircraft. The aircraft must closely replicate the operational characteristics of the latest Soviet-built MIG series aircraft.

In FY 1985, $66.8 million is requested to procure eight ADVERSARY aircraft. In FY 1986, authorization is requested to procure an additional twelve aircraft.

TH-57 (Trainer) SEA RANGER

	(Dollars in Millions)			
	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	36	$24.4	-	-

The TH-57 is a single engine helicopter derived from the Bell Model 206A. It is used to train student aviators in primary helicopter flight techniques.

In FY 1984 and prior, 144 aircraft were procured. Budget authority totalling $24.4 million is requested in FY 1985 to procure the final increment of thirty-six aircraft to complete the total authorized program of 180 aircraft.

Budget Activity 4: Other Aircraft

(In Thousands)

FY 1986 Estimate - $349,700
FY 1985 Estimate - $ -
FY 1984 Estimate - $165,066
FY 1983 Actual - $ 75,750

Purpose and Scope of Work

Aircraft other than those associated with combat, airlift, and training missions are procured under Budget Activity 4.

Justification of Funds

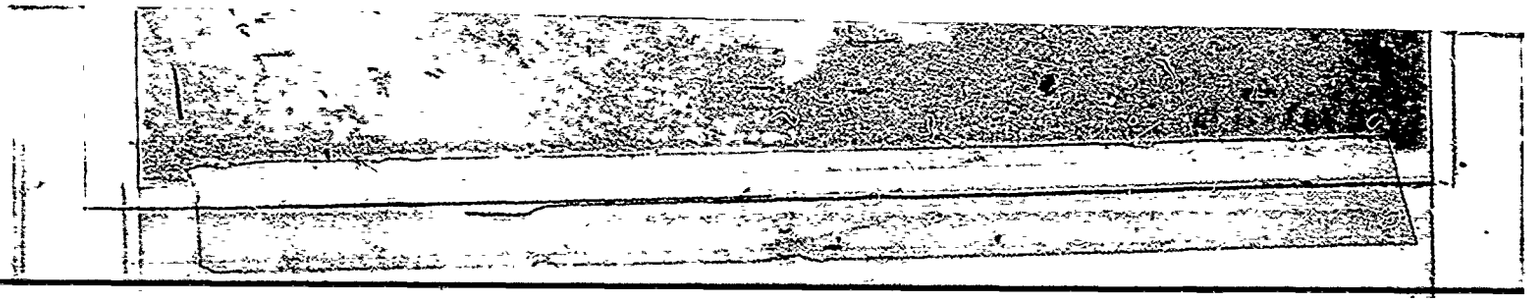
No funds are requested in FY 1985 for procurement of Budget Activity 4 aircraft. In FY 1986 authorization is requested for three E-6A aircraft and advance procurement to support the FY 1987 production effort.

E-6A

(Dollars in Millions)

	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
Procurement	-	-	3	$326.5
Advance Procurement	-	-	-	23.2
Initial Spares	-	-	-	35.4

The E-6A is the replacement for the TACAMO aircraft. Its mission is to provide a survivable communications connectivity between the National Command Post and fleet ballistic missile submarines. Authorization is requested for procurement of three aircraft in FY 1986, as well as for advance procurement for the subsequent year program. A total of fifteen aircraft is planned including one procured with RDT&E,N funds.



Budget Activity 5: Modification of Aircraft

(In Thousands)

FY 1986 Estimate - $2,460,590
FY 1985 Estimate - $1,919,506
FY 1984 Estimate - $1,352,297
FY 1983 Actual - $1,160,933

Purpose and Scope of Work

The Aircraft Modification program funds incorporation of technical improvements which substantially modernize the operational capabilities; improve the maintainability, reliability, and safety; and extend the service life of aircraft which have entered the fleet. Budget estimates and authorization requests include funds for modernization/conversion programs undertaken in lieu of procurement of new aircraft in order to maintain an effective, responsive force level.

Justification of Funds

In order to fulfill inventory requirements, it has become mandatory to operate many older aircraft beyond their originally programed service life and update their weapon systems so that they remain capable of continued effective operation in new threat environments. To accomplish these two objectives, the Navy pursues service life extension and weapons modernization programs. These conversions often involve complex engineering changes which require a major production effort and are usually accomplished at a contractor's facility, with aircraft inducted into an assembly line for the conversion/modernization programs. A substantial portion of the funds requested in FY 1985 and FY 1986 are for modifications in this category.

The FY 1985 budget request and the FY 1986 authorization request also include funds for incorporation of other modifications intended to enhance the operational capabilities of in-service aircraft or their safety-of-flight, maintainability or reliability. Only essential modifications or changes which are necessary to satisfy the most urgent operational requirements are included in this budget request.

Justification for the FY 1985 budget request and for the FY 1986 authorization is provided by a narrative summary highlighting high cost, essential modifications, and a "back-up" section containing a detailed description of most modifications in the budget request. The installation cost of all FY 1980 and subsequent modification programs is budgeted in the Operations and Maintenance, Navy appropriation.

The following narrative summary highlights modification requirements by aircraft series and model.

A-3 Series Modification

The FY 1985 budget request and the FY 1986 authorization request include $5.7 million and $5.6 million, respectively, for A-3 series aircraft modifications. $3.7 million in FY 1985 and $2.8 million in FY 1986 are included for procurement of new communication suite components and replacement of the ARC-51 UHF radio with the ARC-159, a state-of-the art UHF communication system. $.9 million in FY 1985 and $1.0 million in FY 1986 are included for improvements in the ATM oil pump and speed control governor. These improvements will significantly increase the A-3's ability to provide its own hydraulic and electrical power to the weapons system. $1.1 million in FY 1985 and $1.8 million in FY 1986 are included to extend the structural fatigue life of the A-3 which includes identification and replacement/reinforcement of structural areas to insure continued safe operation.

A-4 Series Modification

$21.9 million in FY 1985 and $20.7 million in FY 1986 are requested for A-4 series aircraft modifications. Continuation of the AN/ALQ-162 countermeasures program, which provides complementary Defensive Electronic Countermeasures (DECM) jamming capability with the AN/ALQ-126 Jammer, is requested ($.9 million in FY 1985 and $1.0 million in FY 1986) to significantly increase aircraft survivability against radar-directed air defense systems. $2.2 million in FY 1985 and $2.4 million in FY 1986 are requested for the AN/ARN-118 TACAN, a tactical navigation system reliability improvement. $4.9 million in FY 1985 and $6.2 million in FY 1986 are requested for the Constant Frequency Generator program to decrease maintenance and increase availability of spare parts. In order to consolidate and update the current air data devices being employed, $1.9 million in FY 1985 and $1.6 million in FY 1986 are requested to procure the Digital Air Data Computer System. Incorporation of the provisions for the MAVERICK into the A-4M continues in FY 1985 ($3.3 million) and in FY 1986 ($1.7 million). Additionally, programs under $900K total $.3 million in FY 1985.

Authority is requested for four new starts in FY 1985: the AN/APR-43 radar warning receiver, $.9 million; the AN/ARC-159 radio, $2.3 million; the AN/APN-194 Radar Altimeter System; $1.5 million; and the AN/AJB-3 Reliability Improvement and Equipment Life Extension program, $3.7 million. Follow-ons to these programs in FY 1986 are $.5 million, $2.4 million, $2.6 million and $2.3 million respectively.

A-6 Series Modification

A total of $149.4 million in FY 1985 and $291.3 million in FY 1986 is requested for various A-6 modifications. Paramount among them is the Target Recognition and Attack Multisensor (TRAM). The TRAM program provides the A-6E with improved capability for location and surveillance of opposing Naval Forces and countering of their operations during periods of darkness, allowing maximum night identification and 24-hour strike capability. The system includes a passive imaging infrared sensor and a laser search set located in a 20-inch diameter, space stabilized turret. $64.7 million in FY 1985 and $57.1 million in FY 1986 are requested for TRAM equipment procurement on a multiyear production basis.

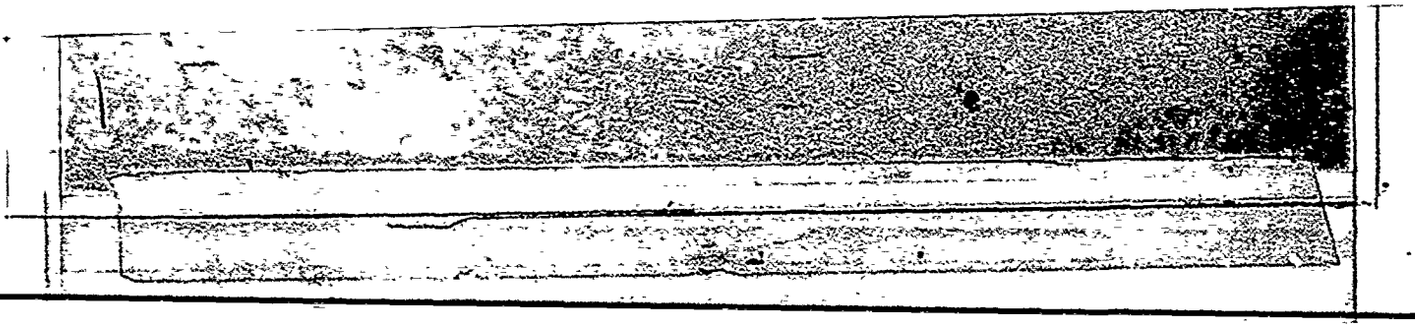
A-6 Series Modification cont'd

$19.4 million in FY 1985 and $37.7 million in FY 1986 are requested to procure the AN/ASN-92 (V) Inertial Measurement Unit (IMU), mount, and Power Supply Unit (PSU) to achieve significantly higher reliability over the present AN/ASN-31 Inertial Navigation System which is being phased out of production. Heavy wing loadings and high-G maneuvers have accelerated the service life completions of older A-6E aircraft necessitating the A-6E Rewing (SLEP) program. An ongoing effort, $9.7 million in FY 1985 and $33.6 million in FY 1986 are requested to continue the program to maintain an adequate inventory of A-6E aircraft and avoid degradation of Fleet readiness.

Other significant on-going programs include the A-6E Weapon Control System Improvement and the KA-6D R&M Update. The Weapon Control System Improvement will simplify and consolidate weapon control system configurations by modifying the aircraft's 4 Pi computer with a double density memory capability, thus providing the additional capacity required for successful operation of all current weapons (i.e., SIDEWINDER, WALLEYE, etc.). The FY 1985 budget request includes $8.0 million in FY 1985 and $11.9 million in FY 1986 for this program. $17.6 million in FY 1985 and $18.6 million in FY 1986 are requested to proceed with the KA-6D R&M Update Modification. This program will bring the configuration of older tankers, A-6As converted to KA-6Ds under a previous CILOP effort, up to the latest configuration as well as incorporate improvements to increase reliability and maintainability. Another continuing program, the A-6E Weapons Integration, will provide increased capability and compatibility and will simplify incorporation of new weapons and avionics systems projected for the A-6E. The FY 1985 budget request and FY 1986 authorization request includes $12.8 million and $25.7 million, respectively, for this effort.

The AN/ALR-67 Radar Receiving Set, Countermeasures Warning and Control System will provide detection and direction finding (DF) coverage over the entire known radar/missile frequency bands for all types of emissions used for target tracking and missile control. $.8 million in FY 1985 and $2.2 million in FY 1986 are required to continue the program. $4.8 million in FY 1985 and $5.0 million in FY 1986 are requested for the AN/AAS-33A Detecting and Ranging Set Access Cover. Procurement of the removable crown and Laser Receiver Transmitter (LRD) will minimize disruption of the Turret Sensor Platform (TSP) and decrease the removal, replacement and retest time necessary for maintenance and repair. The Global Positioning System (GPS) requires $5.1 million in FY 1985 and $6.5 million in FY 1986 to replace the APN-153 doppler in the A-6E. The system package provides in-flight align/inertial damping, improves navigational accuracy and enhances weapon delivery and effectiveness in all mission areas. $5.5 million in FY 1985 will a follow-on procurement of $8.3 million in FY 1986 are requested for A-6E MAVERICK missile provisions, and $1.0 million in FY 1985 is requested for a number of small programs less than $900K.

Authorization for eight new programs and two on-going modifications scheduled for FY 1986 is requested. The largest, the integration of HARM missile capabilities into A-6E TRAM configured aircraft, will require $22.3 million in FY 1986. Incorporation of the HARM missile will provide additional stand-off range and self-protection capability. Other programs for which authorization is requested include the AN/ARC-182 radio for the KA-6D, $6.1 million; the FLAP/SLAT System Improvement, $6.8 million; Standoff Air-to-Ground Weapons, $11.0 million; Strobe Lights, $5.0 million; Digital Fuel Quantity System, $6.3



A-6 Series Modification cont'd

million; the Global Position System (KA-6D), $6.3 million; the Analog to Digital Converter effort, $4.3 million; the Vertical Display Indicator (VDI), $8.9 million; and the Radar Data Converter, $7.7 million, which will replace the existing RDC and its related analog technology with a digital system for a major increase in reliability and safety.

EA-6 Series Modification

In the FY 1985 budget request and FY 1986 authorization request, $79.6 million and $82.2 million respectively, are included for EA-6 modifications. Among the most significant EA-6 modification, budgeted at $38.0 million in FY 1985 and $39.0 million in FY 1986, is the ALQ-99 pods modification. This modification consists of the refurbishment of existing pods and the purchase of additional ALQ-99 jammer pods. Refurbishment of existing pods will lessen significantly the damage to pod components which occurs due to circuitry malfunction, while additional pods are required to support increased aircraft inventories.

The EA-6A Weapons System Update (ALQ-76/86) program will improve the present manually operated Electronic Countermeasures System (ECM) which has been degraded due to length of service life. Goals of the program include increased reliability and maintainability, increased jammer power output (ALQ-76), increased receiver clarity (ALQ-86), and overall greater ease of operation. $10.5 million in FY 1985 and $9.8 million in FY 1986 are requested for this effort.

Included in the FY 1985 budget request and FY 1986 authorization request are $19.6 million and $22.0 million respectively, for the Signal Data Converter (SDC)/Inertial Navigation System (INS). This effort will replace the current dead-reckoning Doppler navigation system to provide the necessary accuracy required for effective employment of the EA-6B weapons system and by doing so, will measurably enhance reliability, improve readiness, and demonstrably lessen life cycle cost.

The APS-130 and Navigation Update for the EA-6A will replace the outmoded APQ-103 radar group and will increase maintainability as well as provide commonality between A-6E/EA-6B radar. $8.1 million is required in FY 1985 and another $5.4 million in FY 1986 to complete the program. Authorization is requested for two new starts in FY 1985 which are Structural Improvement for the EA-6B ($1.5 million and $.8 million in FY 1985 and FY 1986, respectively) and the AN/ALQ-76 Pods ($1.9 million in both FY 1985 and FY 1986). The one new start in FY 1986 is the Computer Interface Unit (CIU) and Encoder Update (ENC) for $3.3 million.

A-7 Series Modification

For various modifications to A-7 Series aircraft, $75.0 million in FY 1985 and $42.7 million in FY 1986 are requested. Of the total program, $21.1 million in FY 1985 is requested for continuation of the A-7 TF-41 HELP effort. The TF-41 Engine

A-7 Series Modification

Hot Section Extended Life Program (HELP) will incorporate redesigned hot section and control components to improve operational readiness, reduce turbine failure, and minimize the cost of ownership. $3.1 million is required in FY 1985 for AN/APR-43 radar warning receiver. Procurement of this item will provide increased warning and direction finding capability to the AN/ALR-45F(V) and negate the need for the AN/ALR-50.

$3.5 million in FY 1985 and $.8 million in FY 1986 are requested for the A-7E HARM modification, which will retrofit HARM capability into FLIR-configured aircraft. This program will continue the procurement of modification kits, HARM peculiar avionics, and the procurement of modified kits for the AERO-5 launcher.

Continuation of several programs is requested in FY 1985. For the Fuel Quantity Indicator modification, $9.2 million and $5.4 million in FY 1985 and FY 1986 respectively, are requested. This program will improve the indicator, wiring and connectors to enhance system reliability. $2.3 million in FY 1985 is requested for the APQ-126 radar update. Procurement of more reliable and updated radar set parts will improve the performance of this set through various operations. Reliability improvements to the ASN-90 ($2.7 million in FY 1985 and $1.4 million in FY 1986) are a redesign of major power supply components utilizing state-of-the-art technology. $4.7 million is requested in FY 1985 for the Re-engine program. Replacement of the TF-30/P408 engine with the TF-41 engine will enhance operational training and support and provide continuity of maintenance for all A-7 type/model/series powered by the TF-41.

Additionally, $8.3 million in FY 1985 and $5.7 million in FY 1986 are requested for the AN/ALQ-162 Countermeasures Set. Working in conjunction with the AN/APR-43 Radar Warning Receiver, the AN/ALQ-162 provides complementary DECM jamming capability to the operational AN/ALQ-126 DECM Jammer installed on tactical aircraft. The addition of the AN/ALQ-162 will result in a significant increase in the survivability for Navy tactical aircraft against radar-directed air defense systems. A variety of minor programs are included in the FY 1985 submission whose cost is less than $900K and $1.6 million in FY 1985 and $1.7 million in FY 1986 are requested for them.

The principal new start in FY 1985 is the A-7E MAVERICK modification. By modifying the Armament Station Control Unit (ASCU), procuring single rail launchers (LAU-117) and interfacing MAVERICK provisions with the TC-2A computer, multiple munitions wiring, head-up display (HUD), APQ-126 radar, WALLEYE wiring and the like, the A-7E will have a greater stand-off range for enemy engagement. $16.3 million in FY 1985 is requested for this major modification and $20.0 million is requested to continue it in FY 1986. Another new start is the Engine Inlet Guide Vane (IGV) Redundant Control System ($2.2 million in FY 1985 and $5.8 million in FY 1986). The outmoded IGV has been proven a major cause of non-recoverable compressor stalls will be replaced by a more reliable Inlet Guide Vane and a fully operational electronic back up system which will allow clearing of a stall and stall-free operation of the engine as well as an improved mission completion ratio. In addition, the IMER/ITER Pylon Cable Project will commence in FY 1986 ($1.9 million) to provide compatible cable/adapter sets for the improved MER/TER (IMER/ITER).

AV-8 Series Modification

Of the $15.4 million and $10.4 million budgeted for AV-8 modifications in FY 1985 and FY 1986, two of the programs are continuing efforts while the two remaining are new starts in FY 1985. $2.2 million is requested in FY 1985 for the AV-8 Structural Integrity modification to replace/reinforce fatigue damage of critical areas. In addition, $.9 million in both FY 1985 and FY 1986 are requested for several programs budgeted at less than $.9 million.

The new starts in FY 1985 include replacement modifications to the Digital Engine Control System (DECS), for which $8.1 million and $5.8 million are budgeted in FY 1985 and FY 1986 respectively. The Engine Monitoring System (EMS) is included in the FY 1985 request, and a total of $4.2 million in FY 1985 and $3.7 million in FY 1986 are requested. Both are tied to backfit of modifications approved for forward fit in production aircraft.

F-4 Series Modification

In the FY 1985 budget request and FY 1986 authorization request, $5.0 million and $1.1 million respectively are identified for F-4 series modifications. The largest amount requested, $1.9 million in FY 1985, is for the AN/ARC-159 Radio. Procurement of this equipment is necessary to update present unreliable system. $1.3 million in FY 1985 is requested for programs under $900K. $1.8 million in FY 1985 and $1.1 million in FY 1986 are requested to continue the AN/AWG-10A Improved Simulated Doppler Signal Project. The signaling device will improve positioning of the missile speedgate for greater accuracy of the AIM-7 missile.

RF-4 Series Modification

Several RF-4 modification programs are listed in the FY 1985 budget request and FY 1986 authorization request totalling $6.2 million and $2.7 million, respectively. $2.0 million in FY 1985 is requested to continue the AN/APQ-99 Foward Looking Radar Obsolesence Update modification. Oriented toward improved maintainability, the program will concentrate on redesigning components that are either obsolete or unobtainable. The ALQ-162 provides complementary jamming capability to the operational AN/ALQ-126 DECM Jammer and requests $1.1 million in FY 1986. $.4 million is requested in FY 1986 for the AN/APR-43 to update the existing AN/ALR-45 (V) and AN/ALR-50 (V). Two new starts, the Follow-On Structural Fatigue program ($1.9 million in FY 1985 and $1.2 million in FY 1986) and the KS-153 Camera Provisions modification ($1.9 million in FY 1985) are also included in the FY 1985 budget request. Finally, $.4 million in FY 1985 is requested for small modification less than $900K.

F-14 Series Modification

Budget authority of $203.3 million in FY 1985 and authorization of $218.1 million in FY 1986 are requested for F-14 modification programs. Of major importance is the TF-30 Engine Improvement package budgeted at $125.7 million in FY 1985 and $111.8 million in FY 1986. Because the F-14A aircraft has demonstrated greater-than-expected capability, the present engine has been exposed to a more demanding environment than envisioned. As a result, the shortcomings of the engine have been revealed

F-14 Series Modification cont'd

and have had a significant detrimental effect on the operational readiness of the aircraft. To alleviate the situation, this program will redesign and replace engine components to achieve improved durability, reliability, and maintainability. $12.2 million is requested in FY 1985 to complete procurement of Expanded Memory Computer Modules that will reduce the weight, volume and required cooling of the AWG-9 Computer presently on-board the F-14A. The Television Camera Sight Unit (TCS) will provide the pilot and radar intercept officer (RIO) with the ability to visually identify airborne targets at long stand-off ranges during day clear weather conditions. To accomplish this modification, $17.4 million and $8.0 million are requested in FY 1985 and FY 1986, respectively.

Other significant ongoing modifications budgeted within the F-14 series are the Main Landing Gear and the Structural Improvements programs. The Main Landing Gear Modification will increase the inner piston wall thickness to eliminate premature cracking and failures. $14.6 million in FY 1985 and $16.7 million in FY 1986 are identified for this purpose. Various deficiencies identified during aircraft fatigue tests will be corrected in an omnibus modification program entitled Structural Improvements. Embracing fifteen separate modifications, $20.7 million in FY 1985 and $45.1 million in FY 1986 are requested. $1.9 million in FY 1985 and $2.8 million in FY 1986 will be necessary to continue the Vertical Fin Substructure effort, a program which replaces aft nacelle frames and brackets. Another reliability and maintainability program, the Structural Fatigue modification is included in the FY 1985 submission, and $5.0 million in FY 1985 and $3.8 million in FY 1986 are requested. Predecessor and companion to the larger Structural Improvements program, the Structural Fatigue modification corrects bulkhead cracking by the addition of interference fit fasteners and new door stop angles and plates as well as by replacing the existing upper and lower torque arm pins on the main landing gear. The Wiring Upgrade modification continues the replacement of "Poly-X" wiring and corroded connectors with more deterioration-resistant HALAR wire and cadmium connectors, and $1.5 million and $1.7 million are requested in FY 1985 and FY 1986 respectively. $1.3 million in FY 1985 and $17.1 million in FY 1986 are requested for Weapons Rails Operational Improvements. Water and cleaning solution intrusion, wiring insulation and connector breakdowns, unsatisfactory fasteners, and mechanical linkage problems have all contributed to the deterioration of the weapons rails. Without modification or replacement of the affected components, PHOENIX capability will be compromised. Finally, a variety of small modifications whose cost falls below $.9 million have been amalgamated under the umbrella "Programs of $900K or less" line, and $3.0 million in FY 1985 and $7.6 million in FY 1986 are requested.

Two programs for which authorization is requested in FY 1986 are the AN/ARC-182 Radio, a program to provide VHF and UHF secure voice communications ($1.7 million) and the ALQ-126 TARPS program which, through the replacement of the ALQ-100, will significantly increase the capability and frequency coverage of the F-14A aircraft's jamming techniques ($1.8 million).

F-8 Series Modification

$.2 million in FY 1985 and $.5 million in FY 1986 are requested for several small programs to maintain the integrity and capability of various F-8 systems.

F-5 Series Modification

Two F-5 series modifications are budgeted in FY 1985: the Structural Fatigue modification ($3.4 million in FY 1985) which will correct known structural fatigue items, and the Programs of $900K or less effort ($.2 million each in FY 1985 and FY 1986).

OV-10 Series Modification

OV-10 Series modifications account for $47.0 million and $66.2 million of the total FY 1985 budget request and FY 1986 authorization request, respectively. $32.0 million in FY 1985 and $44.3 million in FY 1986 are requested to begin the OV-10 A to D Conversion effort which will bring those OV-10's that were not converted previously up to the latest configuration. Once modified, the OV-10D (NOS) aircraft provides the capability to locate enemy troops, artillery positions and armor under conditions of low visibility, night and masking. Additionally, the 30 aircraft to be updated will receive service life extension modifications. Those aircraft that were converted to the OV-10D configuration previously require structural improvements to extend their service life as well. To ensure that these aircraft will remain effective mission assets into the late 1990's, $7.5 million in FY 1985 and $13.3 million in FY 1986 are requested for the OV-10D Service Life Extension program. The AN/ALQ-144 IR Jammer will provide continuous electronic protection against infrared homing missiles. Developed by the Army for use on its AH-1 and UH-1 helicopters, $2.2 million in FY 1985 and $.9 million in FY 1986 are requested for this program. To more fully realize the operational effectiveness of the FLIR and Laser Designator onboard the existing OV-10D aircraft, an improved navigation system is required; therefore, $2.5 million in FY 1985 is requested to procure the APN-233 Doppler Navigation System. $2.8 million in FY 1985 and $3.0 million in FY 1986 are requested for several smaller programs under $900K. Authorization in FY 1986 is requested to retrofit HELLFIRE missile capability into OV-10D aircraft, $4.7 million.

F-18 Series Modification

Included in the FY 1985 budget request and FY 1986 authorization request are $40.2 million and $41.6 million, respectively, for F-18 series modifications. Largest among them, $10.2 million in FY 1985, is the Non-Cooperative Target Recognition (NCTR) effort which will significantly enhance the pilot's ability to determine if an unknown target beyond the visual acquisition range is friend or foe. Procurement of this modification is scheduled to complete in FY 1986 and $5.2 million is budgeted to do so. The last increment of the AN/ALR-67 Provisions ($3.7 million) is included in the FY 1985 request. The system will provide detection and direction finding (DF) coverage over the entire known radar/missile frequency bands for all types of emissions used for target tracking and missile control. $8.0 in FY 1985 and $3.7 million in FY 1986 are requested for Correction of Discrepancies in delivered F-18 aircraft which will update these aircraft to the present configuration of in-production aircraft. Continuation of the Dual Chamber Landing Gear Improvement is requested, and $1.7 million in FY 1985 and $.5 million in FY 1986 is included for this purpose. Also, $1.0 million is requested in FY 1985 for the Video Recording System.

F-18 Series Modification cont'd

The balance of the FY 1985 request for the F-18 series is comprised of five new starts. First, the Double Density AN/AYK-14 Mission Computer modification will provide twice the memory capability of the existing AN/AYK-14 computer and, therefore, fully meet future memory requirements. $6.9 million in FY 1985 is requested to start this program, and $7.0 million is requested to finish it in FY 1986. So that the on-board avionics of the F-18 are compatible with the new AN/ALQ-126B electronic countermeasures system, minor filter and software modifications must be incorporated; therefore, $4.5 million each in FY 1985 and FY 1986 are budgeted for the AN/ALQ-126B Provisions program. $1.4 million in FY 1985 and $2.5 million in FY 1986 are requested for the Automatic Wing Fuel Recirculation modification. A one year program to improve the escape system, the Ejection Seat Improvement effort, is included in the FY 1985 request ($1.7 million). Finally, $1.1 million in FY 1985 and $1.2 million in FY 1986 are requested for the Special Weapons program.

Authorization of $17.0 million in FY 1986 is requested for OMNIBUS Weapons update. This modification will ensure aircraft compatibility with the new, enhanced or existing but unaddressed weapons which are, or will be, in the USN/USMC weapons inventory.

H-46 Series Modification

$157.5 million in FY 1985 and $180.1 million in FY 1986 are requested for various H-46 modifications. The most significant H-46 program, the Safety, Reliability and Maintainability (S,R&M) Update, will require $109.8 million in FY 1985 and $145.9 million in FY 1986. Current planning calls for the use of H-46 series aircraft through the mid-1990s. Needed corrective action must be performed on these aging aircraft to ensure safety, maintain fleet readiness, and avoid exorbitant cost of ownership. Planned modifications involve changes to ensure the adequacy of the basic airframe structure as well as improvements to various system components to increase reliability and maintainability. Also requested are $9.1 million in FY 1985 and $3.5 million in FY 1986 for the ALQ-157(V) IR Jammer. Procurement of an Infrared Jammer for the CH-46, applicable to all USN/USMC helicopters, will provide a needed system to degrade the tracking capability of IR homing missiles. $14.9 million in FY 1985 is requested for the final year of the Fiberglass Blade program. Fiberglass rotor blades will not corrode, will have insignificant environmental degradation, and will increase the mean time between removal by 500 percent.

The Night Vision modification will provide the appropriate equipment to permit low altitude helicopter operations in 25 to 75 percent of night conditions, and $7.4 million in FY 1985 and $5.1 million in FY 1986 are budgeted for this effort. Additionally, $4.7 million and $7.9 million in FY 1985 and FY 1986 respectively are budgeted for the Engine Air Particle Separator, and $2.5 million in FY 1985 is budgeted for the ARN-118 TACAN. $.8 million in FY 1985 and $1.3 million in FY 1986 are requested for programs of less than $900K. To continue the Ground Proximity Warning System safety change, $3.3 million and $3.2 million are requested in FY 1985 and FY 1986, respectively. The system provides audible and visual warnings to aircrews of imminent inadvertent ground contact due to excessive rates of descent, excessive closure rates to terrain, altitude loss or

H-46 Series Modification cont'd

flight into terrain when not in a landing configuration. $3.9 million in FY 1985 and $9.9 million in FY 1986 are requested for the Emergency Flotation System which, through the use of polyurethane flotation bags inflated manually or upon water entry, will allow the helicopter to remain afloat and upright for up to 5 hours. Lastly, $1.1 million in FY 1985 and $2.4 million in FY 1986 are requested for the Engine Condition Control System safety and reliability change.

Only one new start is budgeted in FY 1986 for the H-46 Series, the Multi-Mode Receiver ($.9 million). This airborne landing system will provide the aircraft with the capability to land at military and civil airports worldwide without the need for additional equipment.

H-53 Series Modification

In the FY 1985 budget request and FY 1986 authorization request, $44.4 million and $46.6 million, respectively, are identified for H-53 modifications. $6.9 million in FY 1985 and $3.4 million in FY 1986 are requested for the AN/ALQ-157(V), an IR Jammer that degrades the capabilities of IR homing missiles, a serious threat to tactical helicopters against which current defenses are inadequate. Crashworthy Armored Pilot Seats will provide improved helicopter crash survivability and by doing so, save a substantial number of lives. To fund this effort, $4.8 million in FY 1985 and $6.4 million in FY 1986 are requested. In a similar vein, $4.5 million and $3.4 million are requested for the Crashworthy Fuel System which, as its name implies, will provide more impact resistant fuel tanks and flangeable fittings to contain fuel spillage in the event of impact with the ground. Another safety related modification, the Ground Proximity Warning System, is included in the FY 1985 request ($1.4 million in FY 1985 and $1.7 million in FY 1986). The system will provide audible and visual warning to aircrews of imminent inadvertent ground contact.

New, lightweight armor protection will significantly reduce ballistic vulnerability of the H-53 series while actually reducing weight. A modification to incorporate this armor, entitled Aircraft Survivability Improvements, is included in the FY 1985 request ($3.4 million in FY 1985 and $6.4 million in FY 1986). The Night Vision program will provide the appropriate equipment to permit low altitude helicopter operations in 25 to 75 percent of night conditions. $14.3 million and $15.9 million in FY 1985 and FY 1986, respectively, are requested. Continuation of the LTN-211 OMEGA/VLF Navigation System is requested, and $7.2 million in FY 1985 and $3.6 million in FY 1986 are designated for this effort in the FY 1985 submission. $.8 million in both FY 1985 and FY 1986 are requested for several small programs well under $900K, and $1.1 million in FY 1985 and $.8 million in FY 1986 are included for the Modified Main Rotor Head Damper program.

Two new starts in FY 1986 are submitted for authorization. First, $2.9 million is requested for the AN/ARC-182 Radio program, to provide secure voice communications, and maintain logistics commonality with the FY 1985 and subsequent lots of production CH-53E aircraft. Also, $1.3 million is requested for AN/APR-39 provisions to enable the aircraft to utilize this improved warning receiver.

H-1 Series Modification

The FY 1985 request, $96.7 million, and the FY 1986 authorization request, $115.7 million, includes funding to continue several major H-1 series modifications. $30.9 million in FY 1985 and $31.7 million in FY 1986 are requested for Night Vision modifications for AH-1J/T aircraft. The s improved cockpit system integrated with night vision goggles will improve the tactical effectiveness of this helicopter at night and at low levels. A companion retrofit into the UH-1N community is also budgeted, $11.5 million in FY 1985 and $19.2 million in FY 1986. Another operational improvement for the AH-1 aircraft is the ALQ-136/APR-44. By incorporating a high band defensive electronic countermeasures system (ALQ-136) and a continuous wave warning receiver (APR-44), this modification will enhance aircraft survivability in the modern threat environment. $12.5 million in FY 1985 with a follow-on of $4.0 million in FY 1986 are requested for this program. The final year of the APR-44 modification for UH-1 aircraft ($2.1 million in FY 1985) is also included.

$21.7 million in FY 1985 is requested to continue the HELLFIRE anti-tank weapon system program. Developed for use on the AAH-64 by the Army, this program will provide retrofit of the HELLFIRE missile system in AH-1J and AH-1T helicopters. Additionally, TOW missile system capability will be introduced into the AH-1J concurrently. The FY 1986 increment of the HELLFIRE modification will require $20.3 million. Two safety related modifications are budgeted in the FY 1985 request: $2.1 million each in FY 1985 and in FY 1986 are requested for the Crashworthy Fuel System, and $1.9 million in FY 1985 and $1.4 million in FY 1986 are included for Crashworthy Pilot Seats. To protect against wire obstructions during low level operations, $1.3 million in FY 1985 and $1.2 million in FY 1986 are requested for the Wire Strike Protection effort. Smaller programs include the final year of the Radar Altimeter Readout modification ($1.7 million in FY 1985) and the Load Measuring and Warning System ($.9 million in FY 1985 and $.5 million in FY 1986).

Six new start modifications are budgeted in FY 1985. Among the more significant is the AH-1 Navigation System program for which $2.2 million and $12.2 million in FY 1985 and FY 1986, respectively, are requested. This modification will incorporate the AN/AFN-217 doppler and associated cockpit instrumention to facilitate effective low level and night operations. $1.6 million in FY 1985 and $11.4 million in FY 1986 are requested for the Army-developed Night Targeting System. Also, $2.3 million in FY 1985 is requested to begin the Position Location Reporting System which will permit secure UHF communications between platoon level ground elements and individual aircraft, and $7.8 million is requested to continue this program in FY 1986. Three smaller new starts for the HH-1K aircraft community include the Electronic Warfare Equipment program ($1.4 million in FY 1985 and $2.5 million in FY 1986), the Crashworthy Fuel System ($1.4 million in FY 1985 and $.7 million in FY 1986) and the Night Vision modification ($1.2 million in FY 1985 and $.7 million in FY 1986).

H-2 Series Modification

Modifications for the H-2 series total $15.8 million in FY 1985 and $40.6 million in FY 1986. $3.7 million and $4.9 millio in FY 1985 and FY 1986 respectively, are requested for Tail Pylon/Aft Drive Train Improvements. Basically, this modification will redesign the tail rotor gear box housing and substitute a stronger aluminum alloy for the magnesium currently in use to

H-2 Series Modification cont'd

provide greater fatigue and corrosion resistance. Additionally, the horizontal stabilizer will be redesigned and will be manufactured of titanium to prevent sticking and binding, the flapping and pitch bearings will be changed, and a new forged aluminum tail rotor gearbox mounting rib will also be incorporated. The current AC fuel quantity system has been a reliability problem, and the use of 60 gallon auxiliary fuel tanks has limited the time on station and combat radius of the SH-2F's ASW mission. To alleviate these problems, $1.9 million in FY 1985 and $2.5 million in FY 1986 are requested for the DC Fuel Quantity System and 100 gallon Auxiliary Tanks modification which, as the title suggests, will make the necessary changes. $2.8 million in FY 1985 is requested for the ALR-66 update effort which will correct operational discrepancies in this Electronic Support Measure (ESM) used in the Anti-Ships Surveillance and Targeting mission. Besides updating those systems in the fleet, an additional 20 ALR-66 systems will be procured. In addition, $2.5 million and $1 6 million in FY 1985 and FY 1986, respectively are budgeted for small modifications whose cost is under $900K. $.9 million is requested to initiate the Torpedo Depth Control modification in FY 1985 with a follow-on procurement budgeted at $2.3 million in FY 1986. Lastly, improvements to the ASN-123 TACNAV system, $4.0 million in FY 1985 and $4.2 million in FY 1986, are included to increase the memory and processor speed of the ASN-123 and increase the number of sonobuoy launch tube signals that the system is capable of handling.

Two programs for which authorization is requested in FY 1986 include the Main Gearbox Improvement ($4.3 million) and the AN/ALE-39 Countermeasures system ($1.4 million). The third program scheduled to begin in FY 1986 is the Composite Main Rotor Blade change ($19.4 million). Substantial life cycle cost saving over the current rotor blade system will be realized through this program. The composite blades will be completely compatible with the existing rotor system and reliability will be improved through the elimination of corrosive materials.

H-3 Series Modifications

Of the $110.7 million in FY 1985 and $119.9 million in FY 1986 budgeted for H-3 modifications, $68.3 million and $80.4 million, respectively, are included for the SH-3H/G/D Service Life Extension Program (SLEP) which will extend the SH-3's service life past the year 2000. This program will include extensive rework or replacement of dynamic components, degraded structural components, out-moded flight controls and instrumentation, unreliable emergency flotation gear, and a general rewiring of the aircraft electrical system. Another major modification in the FY 1985 request is the Main Gearbox Improvement, $16.5 million in FY 1985 and $8.1 million in FY 1986. By redesigning the freewheel unit, modifying the lubrication system and improving various subcomponents, a 200 percent increase in main gear box mean time between failures (MTBF) is anticipated. $17.1 million in FY 1985 and $13.6 million in FY 1986 are requested to update the avionics of the executive mission (VH-3D) helicopters. These aircraft provide worldwide executive transportation for the President, Vice President, Foreign Heads of State and others as directed by the military office of the White House. The final year of the Crash Attenuating Seats, $2.5 million is also budgeted in FY 1985.

H-3 Series Modification cont'd

Among the new start modifications in FY 1985 is the Emergency Egress modification ($1.7 million in FY 1985 and $.9 million in FY 1986) which will provide adequate life saving internal illumination should the helicopter submerge. $1.9 million and $2.6 million in FY 1985 and FY 1986, respectively, are requested for VHF Communication and Navigation equipment to permit communication with U.S. or foreign Civil Air Traffic Control and the U.S. Coast Guard. Two HH-3A modifications budgeted in FY 1985 include the IR Suppression program, $1.1 million in FY 1985 and $.9 million in FY 1986, and the Night Vision Goggles effort, $1.6 million in FY 1985.

Authorization is requested in FY 1986 for the AN/ASN-123 Tactical Navigation Set ($6.8 million), the HH-3A EW Suite ($1.8 million) and the MK-46 Torpedo Presetter modification ($4.8 million).

P-3 Series Modificiation

Included in FY 1985 budget request and FY 1986 authorization request are $165.4 million and $239.5 million, respectively, for P-3 modifications. Of these amounts, $3.5 million in FY 1985 and $4.2 million in FY 1986 are associated with HARPOON related modifications. HARPOON-modified P-3B/C aircraft will be capable of carrying and launching four HARPOON missiles. Provisions for the HARPOON Airborne Command and Launch System include pylon modification, wing wiring, inter-connecting cables and data processor, logic unit control panel and other equipment. Incorporation of two new capabilities into the P-3B/C AQA-7 acoustic processing system, the Triple Vernier and the DICASS improvements, is greatly needed to meet the submarine threat of the 1980s. The Triple Vernier will increase acoustic sensor recognition and classification capabilities, while an improved DICASS will provide and enhanced long-range, single sonobuoy firing capability which presently does not exist. $23.6 million in FY 1985 and $12.9 million in FY 1986 are requested for this program. IRDS (Infrared Detecting System), for which $9.7 million in FY 1985 and $8.7 million in FY 1986 are requested, is an electro-optical surveillance system capable of recognizing and identifying surface targets including submarine periscopes and snorkels under night conditions. The system consists of night imaging sensors and associated electronics and display together with a video recorder.

Another major modification included in the FY 1985 budget request is the Advance Signal Processor program (ASP). This modification consists of the ASP, AN/USQ-78 Display/Control, AN/ALQ-158 Antenna, AN/ARR-78 Receiver, Auxiliary Power Unit update and the SG-1156/A. When incorporated, these components will provide significantly improved ASW acoustic detection and classification capabilities for target prosecution in average or poor water conditions. To continue this modification, $63.2 million in FY 1985 and $168.6 million in FY 1986 are requested. Continuation of a variety of ongoing modification programs is also requested. The ALR-66 ESM (Electronic Sensor Monitoring) system is a state-of-the-art replacement for the ALD-2B which is obsloete and lacks the required sensitivity, frequency coverage and bearing accuracy for threat warning. Procurement of this system requires $29.2 million in FY 1985 and $26.1 million in FY 1986. Additionally, the P-3C MAD Integration modification, $8.1 million in FY 1985 and $4.1 million in FY 1986, will enhance and in some cases procure the ASQ-81 system. Other continuing

P-3 Series Modification cont'd

programs include the PARKHILL KY-75, $3.0 million in FY 1985 and $1.8 million in FY 1986, which will provide secure voice communications and the Special Project Aircraft effort, $5.1 million in FY 1985 and $5.5 million in FY 1986. The HF Simultaneous Operations (SIMOPS) program continues and $4.9 million and $5.2 million are requested in FY 1985 and FY 1986, respectively. Through frequency filtering and modification to the aircraft communication switching matrix, this effort will permit independent operation of the two HF radios currently incorporated in P-3C aircraft in transmit and receiver modes simultaneously, without frequency interference. Modification of 9 P-3As to a cargo/passenger configuration to replace retiring C-118 and C-131 aircraft is scheduled to complete in FY 1985 and $13.3 million is budgeted for the effort. Finally, $.7 million in FY 1985 and $1.2 million in FY 1986 are requested for small modifications under $900K, and $1.1 million and $1.2 million in FY 1985 and FY 1986 respectively, are requested for Omnibus R&M Improvements.

S-3 Series Modification

Modifications to the S-3 series aircraft require $163.6 million in FY 1985 and $388.6 million in FY 1986. The most significant initiative is the Weapon System Improvement Program (WSIP), $74.2 million. This program will greatly enhance ASW capability of the S-3A aircraft and on-board processing, display, control, and ESM systems will be expanded. Addition of the Inverse Synthetic Aperture Radar (ISAR) will provide standoff identification of surface targets. Finally, HARPOON launch capability and chaff and flare dispensing will be procured for self defense. Following this massive update, the aircraft will be redesignated the S-3B. $286.7 million is requested in FY 1986 to continue this program. $27.5 million in FY 1985 and $24.1 million in FY 1986 are requested for the Auxiliary Power Unit Replacement. This change consists of providing an additional auxiliary power unit that will be capable of producing increased compressed air while simultaneously providing 45 KVA vice 2 KVA electrical power. Increased air and power output will permit S-3A avionics systems to be ground operational for maintenance etc., without external cooling or power.

Increased reliability and maintainability is the goal of the Display Generator Unit (DGU) modification ($21.2 million and $18.8 million in FY 1985 and FY 1986, respectively). By redesigning the unit and replacing obsolete parts, a 300 percent increase in reliability can be achieved. The ICS Communication Control Group program is also geared toward improved reliability. This effort will replace the existing ICS with a state-of-the-art set utilizing large scale integration and microprocessor technology in place of the current ICS's "hard wire" logic system. The number of components in the new equipment will be reduced as well. $8.1 million in FY 1985 and $9.5 million in FY 1986 are requested. The AN/APS-116 has experienced reliability problems and approximately 10 percent of the Shop Replaceable Assemblies are responsible for greater than 50 percent of equipment failures. $3.3 million in FY 1985 and $8.2 million in FY 1986 are requested to replace the affected components.

$12.4 million in FY 1985 and $10.5 million in FY 1986 are requested for FLIR Reliability Improvements which will provide an eight-fold increase in mean time between failure. The ASA/82 Tactical Display System modification, $5.0 million in FY 1985 and $8.9 million in FY 1986, will replace out-moded display systems with more modern equipments. $1.1 million in FY 1985 is

S-3 Series Modification cont'd

requested to complete the ECS Improvement modification. In addition, $.6 million in FY 1985 and $.8 million in FY 1986 are requested for small modifications whose cost is below $900K. The Standard Central Air Data Computer (SCADC) is a Navy-developed replacement for the existing, unreliable CP-1077 computer. $5.0 million in FY 1985 and $10.4 million in FY 1986 are requested for this program. Other FY 1985 new starts include the Control Servo Upgrade ($1.7 million in FY 1985 and $1.2 million in FY 1986), the Turbine Air Bearing ($1.2 million in FY 1985 and $1.7 million in FY 1986), and the Right Hand Aft Avionics Rack ($2.3 million and $3.0 million in FY 1985 and FY 1986).

Authorization in FY 1986 is requested for the ASN-130 Navigation System, $4.8 million.

US-3A Series Modification

A variety of small modifications totalling $2.4 million in FY 1985 and $1.5 million in FY 1986 are budgeted for US-3 modifications. Largest among them is the Flight Control program, $1.2 million in FY 1985, which will correct deficiencies in the aircraft that adversely impact aircraft mission capability and safety. The remaining programs in FY 1985, budgeted at $1.2 million, and the programs included in FY 1986 ($1.5 million) are all of a safety, reliability and maintainability nature.

E-2 Series Modification

$74.7 in FY 1985 and $99.9 million in FY 1986 are requested for E-2 modifications. The TRAC-A Weapon Improvement program, for which $46.7 million in FY 1985 and $49.4 million in FY 1986 are budgeted, will procure a new radar antenna and associated interfacing hardware to allow the E-2C to keep pace with the jammer threat. Changes in the nature of the threat since the Passive Detection System (PDS) ALR-59 was designed, and fleet experience with the operator workload for the present configuration, require increasing the capability of the memory and adding additional functions. For this effort, $13.6 million and $14.4 million in FY 1985 and FY 1986, respectively, are requested. The FY 1985 submission includes $9.0 million in FY 1985 and $9.5 million in FY 1986 for the AN/ARC-182, a new radio that provides secure voice communications and is planned for most tactical aircraft. $1.7 million in FY 1985 and $1.5 million in FY 1986 are requested for Vertical Control Surface improvements, and $3.7 million in FY 1985 and $6.5 million in FY 1986 are requested for programs less than $900K.

Three programs for which authorization is requested in FY 1986 include: the High Speed Processor modification which, for $13.2 million, will increase control processor track capacity four-fold by replacing two memory modules and associated power supplies; the Computer Recorder Reproducer, $2.6 million; and the Electronic Counter-Counter Measures (ECCM) program, $2.8 million.

Trainer Aircraft Modification

In previous years, a separate line item for each fixed wing trainer aircraft was established despite the relatively small amounts requested. Because many of the modifications budgeted are required throughout the trainer community, for example configuration updates or FAA certification requirements, the individual trainer lines have been consolidated into one account. Commencing in FY 1985, the Trainer Aircraft Modification line item will provide a comprehensive list of modifications budgeted for the T-2, TC-4C, T-34, T-38, T-39 and T-44 series aircraft and $7.9 million in FY 1985 and $7.2 million in FY 1986 are requested. Within the account, $2.5 million in FY 1985 and $2.2 million in FY 1986 are requested for the AN/ARN-118 TACAN for T-2 aircraft. In addition, $1.6 million in FY 1985 and $1.3 million in FY 1986 are requested for T-2 aircraft ARC-159 radios. A TC-4C Update modification is included in the FY 1985 request; $1.7 million in FY 1985 and $1.6 million in FY 1986 are requested. $2.1 million in FY 1985 and $1.8 million in FY 1986 are requested for a number of small modifications budgeted at less than $900K. Finally, authorization in FY 1986 is requested for the CT-39 Avionics Update, $.3 million.

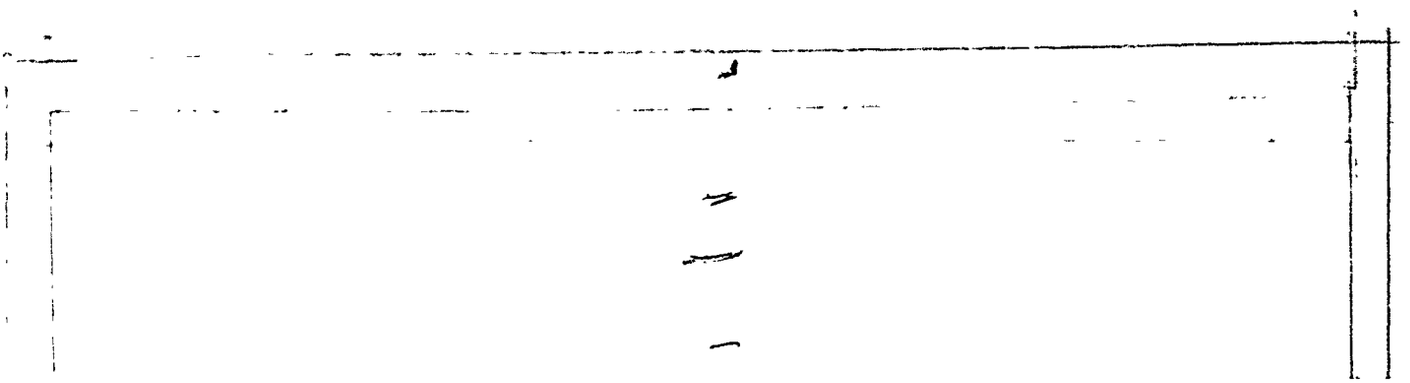
TH-57 Series Modification

$.7 million in FY 1985 and $1.0 million in FY 1986 are requested for a variety of small modifications estimated at less than $900K for TH-57 series aircraft.

Cargo and Transport Aircraft Modification

In previous years, separate line items were included in the budget request for each cargo, utility and transport aircraft series. Because many of the modifications included in the budget will be incorporated across the cargo and transport community, for example the Anti-Collision Strobe Light safety change, the individual lines have been consolidated into one account. Commencing in FY 1985, the Cargo and Transport Aircraft Modification line item will provide a comprehensive list of modifications budgeted for C-1A, C-2, C-9B, C-131, and UC-12 aircraft.

. Two UC-12 modifications, the Ground Proximity Warning System ($1.2 million in FY 1985 and $2.3 million in FY 1986) and the System Improvement ($1.5 million in FY 1985) are requested in FY 1985. A safety modification, the Ground Proximity Warning System will provide audible and visual warning of imminent inadvertent ground contact. The System Improvement will incorporate the OMEGA navigation system in those UC-12B aircraft that do not presently have them. $1.7 million in FY 1985 and $1.9 million in FY 1986 are requested for a few minor modifications whose projected costs are less than $900K. Lastly, $2.2 million in FY 1986 is requested for the C-9 FAA Configuration Update. Hence, $4.4 million in FY 1985 and $6.4 million in FY 1986 are requested for Cargo and Transport Aircraft modifications.



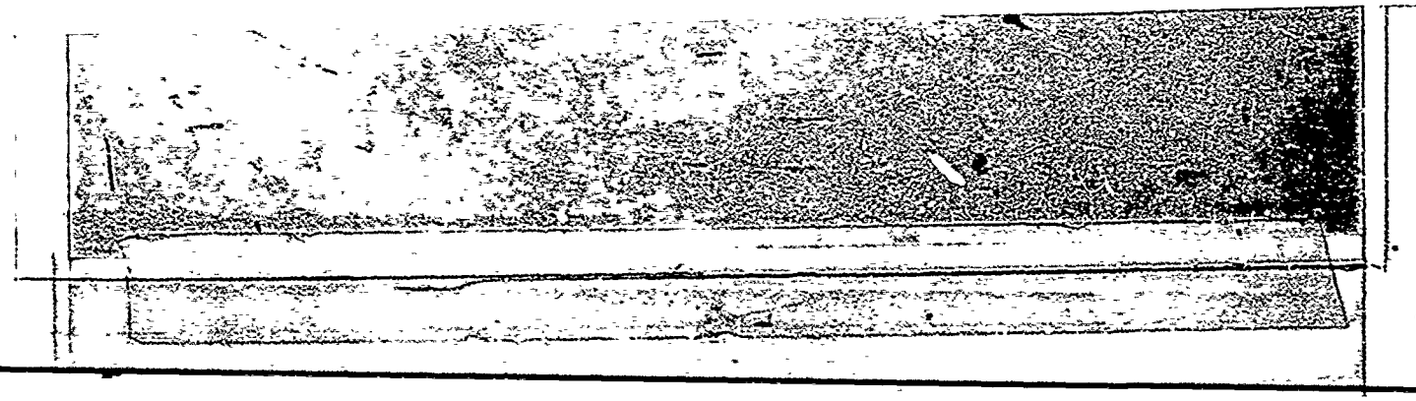
EC-130 Series Modification

Budget authority of $34.0 million in FY 1985 and authorization of $24.5 million in FY 1986 are requested for EC-130 series modifications. $10.0 million in FY 1985 and $6.1 million in FY 1986 are requested for the Mission Avionics modification. Goals of this program include expansion of the present capabilities of the EC-130 avionics in accordance with the Minimum Essential Emergency Communication Network (MEECN) Master Plan and improved reliability and maintainability. In accordance with the Joint Chiefs of Staff requirement for nuclear hardening in TACAMO aircraft, $2.6 million in FY 1985 and $1.2 million in FY 1986 are requested for the Electromagnetic Pulse (EMP) Layer I program. The program consists of devices designed to improve the electromagnetic shielding of the fuselage as well as general filtering throughout the aircraft. A companion effort, EMP Layer II/III, is also included in the FY 1985 budget ($2.9 million in FY 1985 and $.5 million in FY 1986) which consists of shielding electrical wiring and introducing filters and voltage limiters. Funding for a number of continuing programs is also requested including $1.5 million in FY 1985 for the PSK Modem modification, a replacement for the out-moded OM-43, and $1.0 million in FY 1985 for the Solid State Teletypewriter program. $.9 million and $.4 million in FY 1985 and FY 1986, respectively, are requested for several small programs under $900K.

Funding is requested for four new initiatives in FY 1985. $1.9 million is designated for the Survivable Time Standard, a program which will replace the existing unreliable rubidium frequency and time standard supporting the VERDIN with two crystal standards and one satellite receiver. $3.3 million in FY 1986 is requested to continue this change. The AN/ARC-190 radio will provide a major increase in reliability over the existing AN/ARC-132 radio and $5.9 million in FY 1985 and $1.6 million in FY 1986 are requested for it. A one year modification to update the Single Channel Transponder in preparation for scheduled MEECN AFSATCOM procedure changes is included ir the FY 1985 ($6.0 million). $1.3 million in FY 1985 and $.8 million in FY 1986 are requested for the Multiple Satellite Access modification. Authorization is requested for one FY 1986 initiative, the AFSATCOM/ MILSTAR Term Update, $10.6 million, which will incorporate replacement Modems to remain current with the Air Force AFSATCOM program.

C/KC-130 Series Modification

In the FY 1985 budget request and FY 1986 authorization request, $19.9 million and $14.4 million, respectively, are budgeted for C-130 and KC-130 aircraft modifications. The final year of the Avionics Update ($3.7 million) is included in the FY 1985 request. A major effort to replace the old tube-type avionics equipment with solid state components, the LTN-72 Inertial Navigation System, LTN-211 OMEGA, True Airspeed Indicator, APS-133 weather radar, and AN/ARC-130R HF radio will be incorporated into KC-130F, KC-130R and C-130F aircraft. A continuation of this effort, the Avionics System Improvement Program (Phase II) will procure new VHF communications and navigation equipment, a modern TACAN, and add the safety-related Ground Proximity Warning System. $5.0 million in FY 1985 and $3.0 million in FY 1986 are requested for this program. $1.4 million in FY 1985 and $.5 million in FY 1986 are requested for a few minor modifications whose cost are estimated at less than $900K.



C/KC-130 Series Modification cont'd

Significant among the new starts in FY 1985 is the C/KC-130 Safety, Reliability and Maintainability modification. Ten improvements to the C-130F, KC-130F and KC-130R aircraft are scheduled in this program including the Solid State Propeller Synchronization, Compass System, HF Secure Voice capability, and Combined Altitude Radar Altimeter (CARA) modification to name a few. $6.7 million in FY 1985 and $8.2 million in FY 1986 are requested. Additionally, $1.9 million in FY 1985 and $1.4 million in FY 1986 are requested for the Helo Air-to-Air Refueling modification for KC-130 aircraft and $1.2 million and $1.3 million in FY 1985 and FY 1986, respectively, are requested for the Cargo Handling System.

FEWSG Series Modification

The ability to accurately simulate the known and postulated EW characteristics and tactics of different threats for Fleet training is a primary mission element of the Fleet Electronic Warfare Support Group (FEWSG) and its assigned aircraft and equipments. In support of this program, $34.5 million in FY 1985 and $17.2 million in FY 1986 are requested for FEWSG modifications. Largest of the lot is the final year of the ALQ-170 (V1) Simulator set ($16.1 million in FY 1985). This program will procure a new series (variants) of missile simulators which simulate Anti-Ship missiles for Fleet exercises and training. Both specific and non-specific threat simulators will be obtained. The AN/ALQ-170 (V2) will be initiated in FY 1985 ($9.5 million). Major components of the V2 simulators will be totally interchangeable with those of the basic AN/ALQ-170 (V1), and each will expand the system's capability to cover state-of-the-art improvements in a particular threat or family of threats. To continue this effort, $14.4 million in FY 1986 is requested. To provide an ECM device that simulates threat defense ECM systems and several types of threat anti-ship missile seeker systems, $2.4 million in FY 1985 and $1.9 million in FY 1986 are requested for the AN/ALQ-167 and AN/AST Pods. $2.1 million in FY 1985 and $.9 million in FY 1986 are requested for various small modifications under $900K. Two one year efforts, the Power Update ($2.3 million) and the NKC-135A Auxiliary Power Unit ($2.1 million) are also budgeted for FY 1985.

Various Modifications

Six various modifications are budgeted in FY 1985. $4.5 million in FY 1985 is requested for the Sea Water Actuated Release System (SEAWARS). A safety modification, the SEAWARS provides automatic parachute release upon immersion in sea water to preclude aircrew drownings through parachute entanglement and water dragging. A follow-on procurement in FY 1986 is also planned and $2.2 million is budgeted. The final year of the ULQ-16 MITSI Pods program, $3.4 million, is budgeted for FY 1985. This pulse analyzer set works in conjunction with ASW aircraft ESM receiving equipment and measures key parameters of received radar pulsed signals. $1.9 million in both FY 1985 and FY 1986 are included for RSSK-7 Survival Kit Replacement which will substitute the SKU-2/A for the RSSK-7, a highly unreliable system. Two one year modifications will correct dangerous oxygen-related safety deficiencies. $2.3 million in FY 1985 is requested for the Oxygen Reducer Toggle Switch and $1.1 million is requested for the Liquid Oxygen Converter. The major new start, the 30MM Gun Pod, will be a replacement for the existing 20MM

Various Modifications cont'd

Gun and $11.0 million in FY 1985 and $11.0 million in FY 1986 are requested for this program. Finally, authorization is requested for the NAVSTAR Global Positioning System, $10.4 million in FY 1986, which will provide highly accurate passive position velocity and time in all weather conditions. Therefore, $24.2 million in FY 1985 and $25.5 million in FY 1986 are requested for various modifications.

Power Plant Changes

This modification program funds procurement of kits for incorporation of a large number of primarily small dollar value power plant changes into the appropriate engine population. For this purpose, $13.1 million in FY 1985 and $14.1 million in FY 1986 are requested.

Miscellaneous Flight Safety and Operational Necessity Changes

The FY 1985 budget request and FY 1986 authorization request includes $7.0 million and $8.7 million, respectively, for safety related modifications. This program provides for the procurement of kits to correct flight safety and operational mission capability deficiencies which are revealed during actual operation of aircraft in the fleet under diverse tactical and environmental conditions.

Common ECM Equipment

A total of $264.8 million in FY 1985 and $301.6 million in FY 1986 are requested for Common ECM equipment. The largest of the two efforts budgeted, the AN/ALQ-126B, consists of an updated ALQ-126A with improved reliability and performance against prevailing threat emitters. $151.1 million in FY 1985 and $142.6 million in FY 1986 are requested for this vital program.

The ALR-45 modification funds the retrofit of the CP-1293/ALR-67 computer/countermeasures and the IP-1276/ALR-67 azimuth display which have been re-designated the AN/ALR-45F(V). At a cost of $23.6 million and $28.0 million in FY 1985 and FY 1986, respectively, the AN/ALR-45F will provide a software reprogrammable analyzer, an alpha-numeric display of threat bearing and identification, and threat data hand-off capability for the AN/ALQ-126 and AN/ALE-39.

Three additional programs budgeted in the Common ECM Equipment line are the AN/APR-43, the AN/ALR-67 and the AN/ALQ-162 which are common equipments and were previously budgeted under the airframe series lines affected. Logic dictated that, while the airframe provisions necessary to effect the change should remain in the applicable airframe line, the equipments themselves are more effectively budgeted in the Common ECM account for contracting and overall program visibility reasons. Therefore, the costs displayed for these three programs within the Common ECM Equipment line item reflect only the equipment

Common ECM Equipment cont'd

and direct support equipment costs. The AN/APR-43 is a radar warning receiver that provides enhanced countermeasures warning and direction finding capability beyond that currently available. $11.9 million in FY 1985 and $11.5 million in FY 1986 are requested for this system. An improvement in capability, reliability and maintainability, the AN/ALR-67 radar receiving set will provide detection and direction finding coverage over the entire known radar/missile frequency bands for types of emissions used for target tracking and missile control ($41.6 million and $71.3 million in FY 1985 and FY 1986, respectively). Finally, $36.6 million in FY 1985 and $35.3 million in FY 1986 are requested for the AN/ALQ-162 Countermeasures Set, a system that provides complementary DECM jamming capability to the operational AN/ALQ-126 DECM jammer.

Authorization of $12.9 million in FY 1986 is requested for the AN/APR-39 Improvement. This program will update the existing equipment by replacing the analog processor with a digital model, replacing the current receivers and antennas to expand the frequency coverage, and finally, by replacing the cockpit control panel.

Common Avionics Changes

$25.2 million in FY 1985 and $24.2 million in FY 1986 are requested for miscellaneous avionics changes. Of the total request, $8.5 million in FY 1985 and $15.3 million in FY 1986 are requested for the Digital Air Data Converter, a form, fit and function replacement for several unreliable and obsolete air data computers in the inventory. Three modifications to the AN/APX-76 interrogator unit are included in the FY 1985 request. $2.3 million and $2.4 million in FY 1985 and FY 1986, respectively, are requested to procure additional AN/APX-76 sets to retrofit early production F-14 aircraft and outfit F-4 aircraft on a one-for-one vice the current one-for-two basis. Older AN/APX-76 equipments have demonstrated poor reliability and a solid state transmitter will be incorporated into them. For this purpose, $2.8 million is requested in FY 1985. Completion of the AN/APX-76 Anti-Jam modification is also included in the FY 1985 request, $3.1 million. Replacement of a variety of radar altimeter sets, equipments that provide continuous indication of aircraft altitude, with a more reliable and accurate system is a prerequisite to safe aircraft operation. $2.1 million in FY 1985 and $2.2 million in FY 1986 are requested for the AN/APN-171 system to satify this requirement. Continuing programs included in the FY 1985 budget are the AN/APN-154 Radar Beacon reliability improvement ($1.8 million in FY 1985 with a follow-on procurement of $1.6 million in FY 1986) and the AN/APN-182 Navigation Set ($1.3 million and $.5 million in FY 1985 and FY 1986, respectively). Finally, a variety of small modifications valued at less than $900K are included and $3.3 million in FY 1985 and $2.2 million in FY 1986 are requested.

Budget Activity 6: Aircraft Spares and Repair Parts

($ in Thousands)

FY 1986 Estimate - $1,526,857
FY 1985 Estimate - $1,609,734
FY 1984 Estimate - $1,963,199
FY 1983 Actual - $1,959,214

Purpose and Scope of Work

APN Budget Activity 6 funds the procurement of the spare equipment and repair parts necessary to support Navy and Marine Corps aircraft procurement and operating programs. The budgeted funds provide for: (1) initial outfitting and pipeline quantities of reparable spares and repair parts for new and modified aircraft; and (2) procurement of reparable spare equipments and repair parts to replenish inventories supporting the operating and flying-hour program for aircraft already in the Fleet.

Justification of Funds

On 1 April 1981, Navy commenced a test of financing the procurement and repair of non-aviation Depot Level Repairable (DLR) components in the Navy Stock Fund. Prior to this time, procurement of these items was funded in either Weapons Procurement, Navy (WPN) or Other Procurement, Navy (OPN) and repair was funded on a "free issue" basis. Under stockfunding a "buyer/seller" relationship is established and users of non-aviation DLRs pay for what they requisition. The purpose of the test was to determine if readiness would be improved via better material support and economies achieved due to the "buyer/seller" relationship. To date, the test has been extremely successful; therefore, in attempt to attain the same benefits in aviation DLR material support, the Navy is expanding the test to aviation DLRs. The FY 1985 budget incorporates all funding realignments for this test expansion. The expanded test is to begin in April 1985, and to continue through FY 1988.

The FY 1985 budget request for aircraft spares and repair parts is $353.5 million lower than the amount funded in FY 1984. The decreased request reflects the transition of depot level reparable spares into the Navy Stock Fund on 1 April 1985 and projected cost savings related to the Secretary of Defense's ten point spares procurement cost reduction program. The following table depicts the FY 1983 through FY 1986 funding profile for the spares account:

($ in Millions)	FY 1983	FY 1984	FY 1985	FY 1986
Initial Spares and Repair Parts	$ 797.7	$ 794.1	$ 833.1	$ 742.8
Replenishment Spares and Repair Parts	1,161.5	1,169.1	776.6	784.0
Total Aircraft Spares and Repair Parts	$1,959.2	$1,963.2	$1,609.7	$1,526.9

Totals may not add due to rounding

INITIAL SPARES:

Initial spares requirements reflect the number, type and deployment of aircraft being procured and entering the operating



program. The only items being procured under the initial spares category are engines and spares for those equipments and parts which have been recently introduced and therefore have no adequate demand history. Funding requirements for engines and for major avionics and other equipments with a significant unit cost qualifying as initial spares are calculated on an item-by-item basis where possible, considering usage data, failure rates, and engineering estimates based on predicted usage for new items. Requirements for other initial spares and spare parts are determined on a statistical basis, using the same methodology used in calculating major spare equipment requirements.

The following table shows FY 1985 and FY 1986 Initial Spares and Repair Parts support requirements by aircraft model:

($ in millions)	FY 1985						FY 1986					
Aircraft Model	Aircraft Quantity	Spare Engines	Contractor Spares	Navy Spares	PGSE Spares	Total Initial Spares	Aircraft Quantity	Spare Engines	Contractor Spares	Navy Spares	PGSE Spares	Total Initial Spares
A-6E	6	33.2	8.0	.8	1.3	43.3	-	41.8	-	-	-	41.8
EA-6B	6	8.3	1.5	1.2	5.2	16.2	6	12.5	1.5	-	3.3	17.3
AV-8B	32	30.1	13.7	56.6	16.8	117.2	46	55.0	32.6	-	13.2	100.9
F-14A	24	-	.4	3.1	5.4	8.9	24	21.0	4.2	-		25.2
F/A-18	84	61.4	11.6	24.8	13.7	111.6	102	57.2	3.9	-	2.4	63.5
CH-53	10	13.4	10.6	2.8	.8	27.6	14	18.4	7.1	-	-	25.5
AH-1T	22	5.3	12.8	2.8	.5	21.4	22	.7	3.8	-	-	4.5
SH-60B	18	5.7	36.0	52.9	1.1	95.7	18	6.4	-	-	.1	6.6
CV ASW HELO		-	-	-	-	-		1.4	2.2	-	-	3.6
P-3C	9	3.6	7.1	6.1	1.4	18.3	9	4.3	5.5	-	.2	10.0
E-2C	6	7.2	9.9	2.0	4.0	23.2	6	5.8	11.2	-	2.7	19.7
SH-2F	6	-	-	4.1	-	4.1		-	-		-	-
C-9	TBD	-	6.1	-	-	6.1		-	-	-	-	-
C-2	8	-	12.7	-	.7	13.4	8				.5	.5
Adversary	8	3.9	2.4	-	-	6 3	12	9.9	4.0	-	-	13.9
E-6A		-	-	-	-	-	3	4.3	31.1	-	-	35.4
ATE Spare Parts					58.0	58.0					53.8	53.8
CGSE Repair Parts 1/					18.1	18.1					31.2	31.2
Training Device Pts			57.2			57.2			51.9			51.9
AERO Spare Parts				10.1		10.1				11.9		11.9
Modification Spares						176.4						225.7
TOTAL		172.2	190.0	167.3	127.2	833.1		238.6	159.1	11.9	107.4	742.8

Totals may not add due to rounding. 1/ Supports equipment procured in B.A. 7.

Initial spares and repair parts for support of new aircraft are categorized as follows:

(1) Government Furnished Spare Aircraft Engines - (FY 1985 - $172.2 million; FY 1986 - $238.6 million).

Spare aircraft engine requirements are calculated on an actuarial basis to support the aircraft operating program with a confidence level of 80% to 90% that a spare engine will be on site and ready for issue when required by combat aircraft. Requirements are determined by developing a flying hour program for each type/model aircraft and applying against it engine repair and removal rates to determine total engine procurements. On hand and on order assets are deducted from this gross requirement to arrive at a net procurement requirement. Requirements are thus established for initial outfitting of shore sites and carriers and to fill maintenance repair/overhaul pipelines.

(2) Contractor Spares Support - (FY 1985 - $190.0 million; FY 1986 - $159.1 million)

Contractor furnished spares and repair parts are provided for support of new, sophisticated weapons systems or subsystems during their development, test and fleet introductory phases until either the Navy Support Date (NSD) or Material Support Date (MSD) is reached, at which time the Navy supply system assumes responsibility for providing all spares and repair parts. Contractor support is designed to preclude procurement of unnecessary or unstable spare parts before usage data is available or aircraft equipment design is frozen. Requirements are calculated by comparing the new weapon system with historical data for a similar/same aircraft and utilizing the Weapon System Planning Document (WSPD) which provides the site activation schedule.

(3) Navy Spares - (FY 1985 - $167.3 million; FY 1986 - $11.9 million)

The Inventory Control Point (Aviation Supply Office) must purchase investment spares and repair parts under its management cognizance to outfit shore sites and carriers and pipe-line stock requirements in support of new aircraft, engines, or installed systems. Navy's spares support responsibility commences at the beginning of a new program for Government Furnished Equipment and at the Navy Support Date for Contractor Furnished Equipment. This category does not include any requirements after transition to the Navy Stock Fund financing on 1 April 1985, except for a small number of Ships Parts Control Center (SPCC) managed gun systems which remain APN financed.

(4) Peculiar Ground Support Equipment (PGSE) - (FY 1985 - $127.2 million; FY 1986 - $107.4 million)

The funding requested here provides for repair parts essential to the support (readiness) of PGSE end items required for the ground testing, servicing, handling and maintenance of specific weapon systems and their sub-systems. These PGSE end items require complete integrated logistic support (ILS), including repair parts, concurrent with delivery in order to adequately support the related weapon systems.

PGSE spares funding requirements are divided into two categories: Initial Outfitting List (IOL) support and augmented support. IOL support is determined by a comparative cost analysis of similar end item demand patterns. Augmented support requirements are determined by the initial quantity of PGSE end items procured, the complexity/cost of the end items, the number of sites to be supported, the proximity/inter-support relationship of shore-based sites, and the period of time between

equipment introduction and material support date. This category does not include PGSE IOL spares requirements after 1 April 1985 due to the transition to Navy Stock Fund financing.

(5) Modification Spares - (FY 1985 - $176.4 million; FY 1986 - $225.7 million)

The investment program also includes procurement of initial reparable spares and repair parts to support modification programs financed under APN Budget Activity 5. Requirements include new procurement and/or the modification of spares and repair parts already in the inventory. Requirements are based on the corresponding elements being procured for the aircraft modification program.

REPLENISHMENT SPARES:

Total funding requested for all replenishment spares programs is $776.6 million in FY 1985 and $784.0 million in FY 1986. Most of the requirements for replenishment spares for reparable items are budgeted and procured through the Aviation Supply Office and the Ships Parts Control Center, which are the inventory control points (ICPs) for aircraft systems and component parts. The rest of the requirements for replenishment spares are procured at the Naval Air Systems Command Headquarters. Commencing on the 1 April 1985 basic replenishment attrition and pipeline requirements will be managed in the Navy Stock Fund. In addition, the Aviation Outfitting Account will be established on 1 April 1986 to buy all outfitting spares from the Navy Stock Fund.

The replenishment spares element of the budget funds the procurement of reparable components in support of all Naval Aviation spares requirements subsequent to the end of the initial support period. The replenishment spares element of the budget is made up of:

(a) The basic replenishment portion which provides for the procurement of spare reparable components to replace components lost through attrition and to provide for pipeline assets.

(b) Follow-on outfittings which are required to provide the spare component support necessitated by aircraft site outfitting subsequent to the demand development period.

The following table displays the funding breakdown for the above replenishment spares programs:

($ in Millions)	FY 1985	FY 1986
Inventory Control Point Support	$ 760.2	$ -
Aviation Outfitting Support	-	761.1
Interservice Support	6.3	10.2
Executive Mission Helicopters	6.9	9.5
Miscellaneous Headquarters	3.2	3.2
TOTAL REPLENISHMENT SPARES	$ 776.6	$ 784.0

Totals may not add due to rounding.

The replenishment spares are categorized as follows:

(1) Inventory Control Point (ICP) Support - (FY 1985 - $760.2 million)

Spare reparable components are managed by the Aviation Supply Office and the Ships Parts Control Center, which have been assigned program support responsibility for specific aircraft/weapon systems. Spares requirements are calculated by an individual line item stratification technique. The Uniform Inventory Control Point (UICP) stratification requirements are computed utilizing DOD logistics guidance, Navy program planning data, and technical, procurement, and inventory data maintained by the ICP. Navy program planning data includes total aircraft inventory and sites, the actual and planned flying hour programs affecting aircraft utilization, schedules of aircraft reworks and engine overhauls, and other factors relating to aircraft support. During stratification, these components are evaluated in terms of inventory on hand and on order, demand experience, projected demand, outfitting requirements, and current fleet requests which may not yet have been filled. The pipeline and attrition portions will be managed by the Navy Stock Fund after 31 March 1985.

(2) Aviation Outfitting Support - (FY 1986 - $761.1 million)

This new category has been established (1 April 1986) to accomodate outfitting spares from both the Initial and Replenishment section of Aircraft Spares and Repair Parts. This account will procure from the Navy Stock Fund all fleet and shore activity outfittings required for an increasing aircraft population.

(3) Interservice Support (ISS) - (FY 1985 - $6.3 million; FY 1986 - $10.2 million)

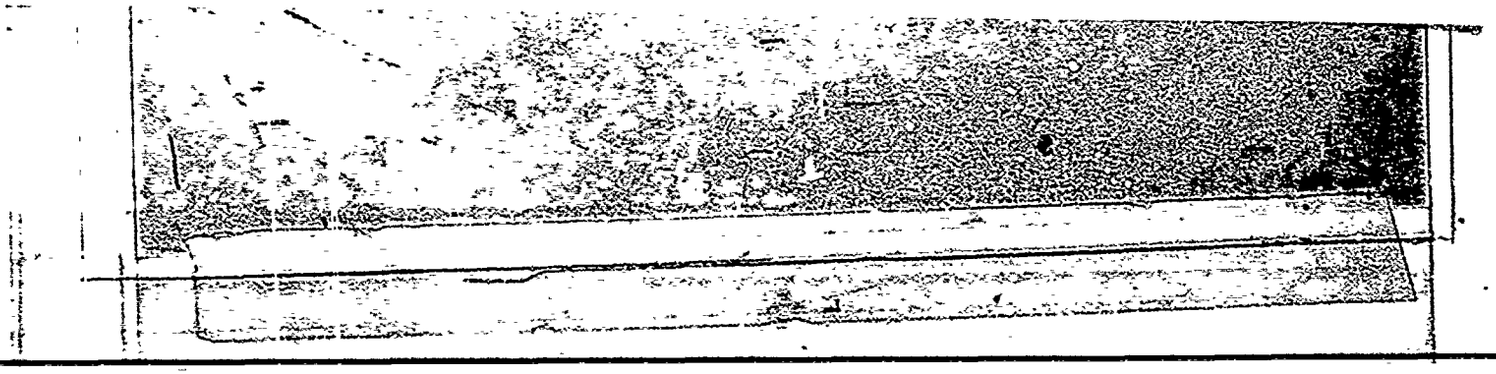
Funds are required to reimburse the Army and Air Force for reparable material used during both in house (organic) and service administered commercial overhaul work of Navy aircraft engines, airframes and other reparable components. Material requirements are calculated by the Army and Air Force for the Navy's projected overhaul/rework program and are validated through negotiation between the Naval Air Logistics Center and Army/Air Force representatives.

(4) Executive Mission Helicopters (XM) - (FY 1985 - $6.9 million; FY 1986 - $9.5 million)

Reparable spare components are required to support the VH-3D and VH-1N Executive Mission aircraft. The Executive Mission provides a transportation and evacuation capability for the Chief Executive, Heads of State and other visiting dignitaries. Eleven VH-3D and six VH-1N aircraft operate from one primary site and two auxiliary sites. In addition, the helicopters operate for extended periods of time from numerous other locations necessitating selected item pack ups. Material support requirements are calculated based on inputs from the operating squadron, the aircraft contractor and those peculiar requirements set forth by the Executive Branch. Executive Mission helicopters must have 100% spares support for reparable components. These components are procured so that a spare component will be on hand when the component reaches half of its projected service life.

(5) Miscellaneous NAVAIR Headquarters Support - (FY 1985 - $3.2 million; FY 1986 - $3.2 million)

This includes material support requirements for the Fleet Electronic Warfare Support Group (FEWSG), Project Beartrap, Project Churchplate, VH-3A aircraft support, and production compatibility changes. Spares requirements for FEWSG, Project Beartrap and Project Churchplate are developed by the Naval Avionics Center (NAC) in conjunction with the operational activities, based on past usage and anticipated system changes. VH-3A spares requirements are developed by the Fleet operational squadron and NAVAIR, using historical data to project future material requirements. Spares requirements to support production compatibility changes were projected by NAVAIR using past historical data and anticipated future compatibility changes.



Budget Activity 7: Aircraft Support Equipment and Facilities

	(In Thousands)
FY 1986 Estimate	$882,908
FY 1985 Estimate	778,675
FY 1984 Estimate	413,008
FY 1983 Actual	423,511

Purpose and Scope of Work

The FY 1985 budget plan of $778.7 million and the FY 1986 authorization request of $882.9 million provide continuing vital effort in the four following categories which support aircraft procurement programs:

(1) Common Ground Equipment, which provides funds for Automatic Test Equipment (ATE), Avionics Support Equipment (ASE), various aircraft systems trainers and training aids, the Maintenance Information Automated Retrieval Systems (MIARS), the Engineering Data Management Information Control System (EDMICS), and other aircraft ground support equipment including Rapid Deployment Force requirements and mobile maintenance facilities for Marine expeditionary forces.

(2) Aircraft Industrial Facilities, which provides calibration equipment for Navy standards and calibration laboratories. It also provides for capital improvements, modernization, and maintenance of government-owned, but contractor-operated, aircraft-producing industrial plants.

(3) War Consumables, which provides funds for auxiliary fuel tanks, Air Refueling Stores, pylons, and ejector racks and for the modification of aircraft fuel tanks. The new procurement items are of a consumable nature and are related primarily to the number of sorties flown by combat and training aircraft.

(4) Other Production Charges, which provides funds for miscellaneous production support and testing services, aircraft cameras, various equipment for United States Coast Guard aircraft, and aircraft pods and instrumentation packages supporting tactical aircrew combat training and mobile sea range systems.

Justification of Funds

Funding requirements for FY 1985 and FY 1986 are outlined in the following table:

	(Dollars in Millions) FY 1985 Funding	FY 1986 Authorization
Common Ground Equipment	$645.2	$702.2
Aircraft Industrial Facilities	55.8	56.2
War Consumables	28.7	65.0
Other Production Charges	49.0	59.5
Total B.A. 7	$778.7	$882.9

Common Ground Equipment - FY 1985 $645.2 million; FY 1986 $702.2 million

The FY 1985 budget plan for the Common Ground Equipment Program totals $645.2 million. The FY 1986 authorization request is $702.2 million. Funding for the various segments of this program is depicted below and described in subsequent paragraphs:

		FY 1985 Funding	FY 1986 Authorization
(a)	Training Equipment	$104.5	$122.5
(b)	Automatic Test Equipment (ATE)	182.7	225.7
(c)	Aircraft Common Support Equipment	89.8	134.1
(d)	Mobile Maintenance Facilities	9.0	13.5
(e)	Inventory Control Point (ICP) Managed GSE	84.9	102.7
(f)	Headquarters Managed PSE	23.2	24.2
(g)	Gas Turbine Compressor Replacement	46.0	15.4
(h)	Avionics Support Equipment	30.2	45.9
(i)	Rapid Deployment Force/Maritime Prepositioned Ships	66.7	8.0
(j)	Aircraft Salvage Equipment	6.6	7.8
(k)	Maintenance Information Automated Retrieval Systems (MIARS)	.5	1.5
(l)	Engineering Data Management Information Control System (EDMICS)	1.1	.9
	Total Common Ground Equipment	$645.2	$702.2*

* Does not add due to rounding.

Training Equipment

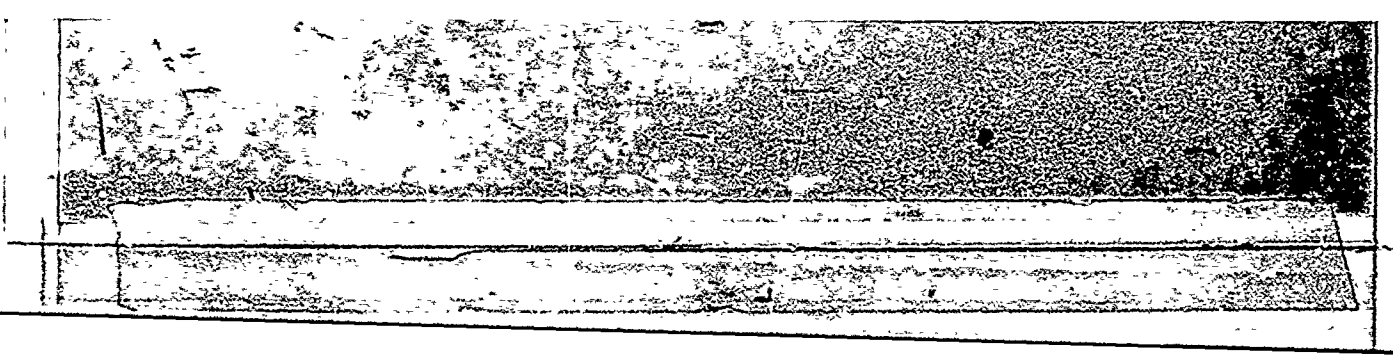
The FY 1985 budget request is $104.5 million and the FY 1986 authorization request is $122.5 million. The Training Equipment sub-line item provides funds for acquisition of trainers, training equipment, training parts, GFE/GSE for training purposes, and modifications/changes relating to the above acquisitions. The procurements funded within the Training Equipment sub-line item are limited to: (1) training devices and equipment and related modifications for generalized training programs which provide skills common to more than one weapon system, (2) trainers for out-of-production aircraft, and (3) GFE in support of courses at the Navy Formal Schools. Training on out-of-production aircraft is dependent upon these funds for all acquisitions, specific trainer-peculiar changes, modification/modernization, user-generated changes and replacement. The Training Equipment subline item is broken into two major categories, General Training Equipment and Modification/Modernization of Trainers. The following tables display funding profiles within the Training Equipment subline item:

General Training Equipment

	(In Thousands)	
	FY 1985	FY 1986
Area II Minor Aids and Devices	$ 1,850	$ 2,395
Area III General Trainers	28,402	23,700
Air Combat Maneuvering Simulator	7,644	8,031
Laser Air-to-Air Gunnery Simulator (LATAGS)	89	81
Landing Signal Officer Trainer (LSO)	4,000	2,000
Physiological Trainers	2,142	4,243
Total General Training Equipment	$44,127	$40,450

Modification/Modernization of trainers requirements, including GFE for out-of-production weapon systems

	(In Thousands)	
Program	FY 1985	FY 1986
TA-4J	$ 298	$ 244
AV-8A	325	376
A-7	2,218	5,735
F/RF-4	1,542	2,493
E/K/C-130	1,638	1,105
T-2C	2,360	3,051
S-3A	21,811	30,958
E-2B	169	133



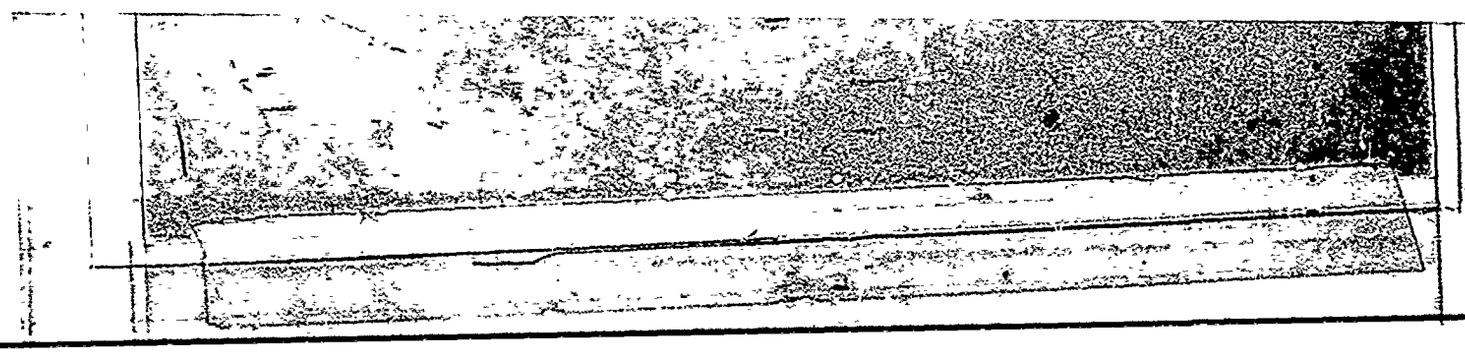
Program	(In Thousands) FY 1985	FY 1986
H-1	2,833	1,541
H-3	10,074	14,520
H-46	6,137	7,848
CH/R-53	300	5,427
Govt. Furnished Equipment for Formal Schools	2,039	3,637
A-3	177	214
A-4	154	122
T-44A	440	0
OV-10A	58	47
EA-6A	7,800	2,599
P-3B	0	2,000
Total Modification/Modernization	$60,373	$82,050

ATE (Automatic Test Equipment)

The FY 1985 budget request includes $182.7 million for ATE and the FY 1986 authorization request includes $225.7 million for ATE. The ATE segment of the Common Ground Equipment budget line item was established to broaden this category of support equipment acquisition formerly limited to VAST (Versatile Avionics Shop Test). The ATE account funds the procurement of the new MINI-VAST and Tailored MINI-VAST, as well as a family of module testers including the Hybrid Tester, the Digital Tester and the Navigation Set Test System to support Inertial Navigation Systems in the fleet.

The new six-rack VAST-derived MINI-VAST was designed to accommodate the testing requirements of the advanced avionics systems in the F/TF/A-18A aircraft and other planned avionic systems which incorporate the latest electronic design technology. The new five-rack Tailored MINI-VAST will support the avionics systems of the SH-60B LAMPS MK III aircraft. MINI-VAST and Tailored Mini-Vast program objectives are: (1) to provide support as the principal avionics test equipment for F-18, TF-18, A-18 and LAMPS weapons systems; (2) to maximize commonality with the VAST system; (3) to preclude the development and introduction of new special purpose test equipment, and provide a more cost effective, logistically common and technically superior standard testing system; (4) to reduce the number of avionics technicians required in the avionics shop; and (5) to reduce shipboard avionics support spare requirements. The FY 1985 Budget request will fund the acquisition of ten MINI-VAST and three Tailored MINI-VAST systems stations. The FY 1986 authorization amount will procure ten MV and three TMV stations.

Acquisition of the NAVAIR standard digital module tester (i.e., CAT) is planned to continue consistent with contractor test program development and Fleet support requirements. This tester satisfies the stringent testing requirements of digital shop replaceable assemblies (SRAs) from a broad range of avionic systems which require dynamic testing data 10 MHz data rate with multiple logic levels. The CAT is presently deployed at over thirty operational sites including 12 CVs. Additional units are required to outfit F-14, E-2, A-6, and A-7 fleet operating sites.



The Hybrid Test Systems (HTS) is required to conduct the complex testing requirements of hybrid (combined analog and digital) and pure analog modules. Acquisition is planned to continue for support of F/A-18, AV-8B and SH-60 sites and to replace obsolete, manual testers in a planned off-load program for A-6, EA-6, E-2, and F-14 modules. This tester complements the CAT by providing broad general purpose support for SRAs.

The Navigation Set Test Station was originally developed to provide support for the AN/ASN-92 Carrier Air Inertial Navigation Set (CAINS) and to replace the 1960-era Peculiar Support Equipment (PSE) that had been acquired to support earlier inertial navigation systems. Design flexibility and growth potential have allowed expansion of the application of this versatile item of ATE. Continued procurement is required to optimize support of the AN/ASN-92, and ensure timely support of the F/A-18 INS and future advanced INS systems such as the Laser Inertial Navigation Set.

The advanced concept of AEWTS was developed in the 1980-82 timeframe to provide I-level support for carrier-based EW systems. This test station, with dual-port capability enables the computer and other station resources to be time-shared, thus allowing the testing of two (2) WRAS simultaneously. This technical approach was adopted to meet ship space reduction requirements by maximizing the use of test station assets. In addition, the RF power and digital testing capabilities will satisfy the most sophisticated present or planned EW systems testing requirements.

System modification is necessary to maintain technological currency and incorporate necessary reliability and maintainability improvements in two major, out-of-production, items of ATE (i.e., Electro-Optical Systems Test Set (EOSTS) and VAST). Modifications to EOSTS are necessary in order to provide for continued support of A-6, S-3, A-7, P-3, and OV-10 electro-optical systems without sacrificing operational readiness. Similarly, VAST stations, which currently support over 150 weapons replaceable assemblies in the S-3, E-2, F-14 and A-7 aircraft, require improvement and enhancement in order to remain capable of satisfying the more complex testing requirements of new airborne avionics.

The Radar Communication Test Set was originally developed to support advanced E-2C radar capabilities but has also been selected to support A-6E and EA-6B radar and communication systems. The test set incorporates design flexibility, growth potential, standardization, and logistic commonality while containing the technical capabilities for testing the complex RF and digital requirements of new radar system.

Aircraft Common Support Equipment

The Aircraft Common Support Equipment element under the Common Ground Equipment line item provides for the initial outfitting of Common Support Equipment under NAVAIR inventory and technical management. These Support Equipment (SE) end items are required for ground testing, servicing, handling, and maintenance of aircraft and their systems. SE items acquired under this budget line item include engine propulsion test systems, mobile air conditioners and generators, and miscellaneous support items such as armament-handling equipment and aircraft firefighting equipment.

A comprehensive acquisition plan has been developed for each FY 1985 SE requirement item to ensure that the equipment is ready for procurement by the budget year; to determine the type of procurement action to be initiated; and to initiate a realistic plan for satisfying the fleet requirement for SE end items.

The equipments to be procured are determined through one of the following processes:

1. The direct result of the SE RDT&E Program (these are equipments required to support advanced aircraft systems developments).
2. Reprocurement of current SE required to respond to deficiencies.
3. Improved versions of current SE required to support expanded airborne equipment capabilities or advanced airborne equipment developments (e.g., Mobile Electric Power Plant)
4. Major modifications of existing equipments (e.g., Engine Test Stand Update).
5. Equipment developed to improve the capability of the Fleet and/or to improve safety.

To fill the minimum acceptable level of established requirements, budget authority for $89.8 million in FY 1985 and authorization for $134.1 million in FY 1986 is requested.

Mobile Maintenance Facilities

Budget authority of $9.0 million in FY 1985 and authorization for $13.6 million in FY 1986 for Mobile Maintenance Facilities are requested. This program provides for the acquisition of Mobile Facilities and related equipment to support Marine Corps Expeditionary Force and Navy contingency/mobilization aircraft and weapon system maintenance operations. The concept is to provide rapid-response mobility by the use of relocatable maintenance shelters. Execution of the Marine Corps Aviation mission is dependent on a highly mobile and functionally independent aircraft maintenance support capability.

The basic equipments procured under this subline item are the container (VAN), air conditioner, 60-Hertz electric generator, running gear and static converter 60 Hz to 500 Hz. The Navy requirement is driven by the P-3C Contingency/ Augmentation Mobile Maintenance Support System (C/AMMSS).

ICP Managed SE

ICP Managed SE funds the procurement of end items of Peculiar Support Equipment (PSE) for out-of-production aircraft and systems, and Common Support Equipment (CSE) which are under the budget, procurement, and inventory control of the Aviation Supply Office (ASO), Philadelphia, and the Ships Parts Control Center (SPCC), Mechanicsburg, PA. CSE end items are normally introduced into the Fleet thru NAVAIR development and initial procurement. The items are turned over to ASO or SPCC inventory management as an Inventory Control Point (ICP) item after the production specification and procurement package have been

stabilized. Most PSE items are assigned to ASO management from the outset. These items are associated with a weapon system and are recommended by the aircraft or airborne system contractor, reviewed and approved by the Navy, and assigned to ASO for procurement and inventory management.

The budget requirements for this element are categorized as follows:

a. New CSE required for site outfittings incident to employment of new weapon systems or equipments.
b. Replacement CSE resulting from wear-out and attrition.
c. Increased quantities of CSE required for allowance augmentation.
d. Increased quantities for out-of-production aircraft and systems required due to changes in base-loading beyond original planning or changes in maintenance policy.
e. Replacement PSE due to attrition.

These SE end items are "principal" items managed by the ICPs with no demand or usage criteria, and require more selective management attention than do the ICP secondary items (spare and repair parts). Typical SE end items procured under this sub-line item include aircraft jacks, aircraft tow bars, hoisting slings, armament handling equipment and maintenance platforms. This program funds the acquisition of some 6000 individual models of CSE and PSE with an inventory value nearing $20.0 billion.

To support this program, $84.9 million in FY 1985 and authorization for $102.7 million in FY 1986 are requested.

Headquarters Managed Peculiar Support Equipment

This budget subline provides funds to replace certain in-use Peculiar Support Equipment (PSE) assets of the late 1960 and early 1970 vintage that are now marginally effective due to obsolescence or for which logistic support is not available because the applicable vendors no longer manufacture the items or its associated repair parts. Alternate sources are not available. As a consequence, a replacement item that is logistically supportable must be designed and produced. In addition, this subline provides for modification of PSE to extend its useful service life.

Budget authority of $23.2 million in FY 1985 and authorization for $24.2 million in FY 1986 is requested for this program.

Gas Turbine Compressor Replacement

The FY 1985 budget request of $46.0 million and the FY 1986 authorization request of $15.4 million will finance the acquisition of new GTC equipments: to replace existing mobile/turbine-powered air start units at all Navy/Marine Corps activities. Currently, 60 shorebased activities and 13 carriers must be supported with air start systems. Present units average 25 years in age and suffer from poor maintainability and reliability. The acquistion of new, more reliable equipment will enable the Navy to meet its vital support requirements.

Avionics Support Equipment

The FY 1985 budget request of $30.2 million and the FY 1986 authorization request of $45.9 million will fund four pieces of new support equipment, the Armament Programmable Test Set (APTS), the AN/USM-406(V) Countermeasure Test Set, a state-of-the-art TACAN Test Set, and a new Compass Calibrator Test Set. The APTS is a multi-application, microprocessor-controlled test set for support of Missile Launchers, MERS/TERS, and Bomb Racks (conventional and nuclear). The AN/USM-406(V) is a newly-configured electronic warfare counter-measures test set used in organizational level maintenance support of a variety of EW equipments. The new TACAN Test Sets will replace 20-year old test sets and will enable rapid resolution of weapons replaceable assembly ambiguities for all TACAN systems. The new Compass Calibrator Test Sets will employ state-of-the-art microprocessors to automate testing of compass calibrators; this process is currently performed in a largely manual fashion. Test times and manpower requirements will be significantly reduced and accuracies substantially improved.

Rapid Deployment Force/Maritime Prepositioned Ships

The FY 1985 budget request of $66.7 million and the FY 1986 authorization request of $8.0 million will fund support equipment for the new Rapid Deployment Force. Common Support Equipment (CSE), Armament-Handling Equipment (AHE), organizational-level Peculiar Support Equipment (PSE) and selected intermediate level PSE will be procured to support a variety of fixed-wing and rotary-wing aircraft. The equipment procured in FYs 1985 and FY 1986 will support the outfitting of the second and third Marine Amphibious Brigades (MABs). The support equipment items will be stored on USMC Maritime Prepositioning Ships (MPS) at various locations throughout the world.

Aircraft Salvage Equipment

The budget request of $6.6 million in FY 1985 and the authorization request of $7.8 million in FY 1986 will provide for the replacement of existing NS-60 aircraft crash cranes which have been deployed for over 13 years aboard the Navy's CV class carriers, and the HCC-30/50 crash cranes which have been deployed for 14 years aboard LHA/LPH/LPD class ships. During this time, the weight and size of deployed aircraft have increased, such that they exceed the maximum lifting/mobility requirements

of these cranes. Aircraft crash removal is seriously debilitated creating an unacceptable operational readiness impact. Further, the aging NS-60 and HCC 30/50 cranes have experienced declining reliability, maintainability and supportability which have seriously degraded their operational effectiveness. A five-year multiyear production contract will be competitively awarded in FY 1985 for 56 CV/HCC crash cranes with deliveries commencing in FY 1987.

Maintenance Information Automated Retrieval System (MIARS)

The FY 1985 budget request for MIARS is $.5 million and the FY 1986 authorization request $1.5 million. The MIARS program is designed to meet the objective of converting the existing NAVAIR technical manual inventory from paper to microfilm. The program provides for the progressive conversion to a manageable 16MM microfilm data base, investigates the compatibility of information to insure adequate presentation techniques and data integrity, and controls the procurement of specilized update and reading equipment for the enhancement of fault isolation and repair through the use of automated rapid retrieval equipment. The present request will permit continued support of total fleet requirements as identified by a fleet survey.

Engineering Data Management Information Control Systems (EDMICS)

The object of the Engineering Data Management Information Control System (EDMICS) Program, is to provide more timely and complete engineering data and drawings to the Naval Air Rework Facilities (NAVAIREWORKFACs) for support of weapons system and component maintenance and overhaul and to the Aviation Supply Office (ASO) for competitive reprocurement support. To this end the $1.1 million required in FY 1985 and the $.9 million authorization required in FY 1986 will procure the basic hardware system and peripheral equipment to be used in the eletromechanical handling, manipulation, reproduction and electronic submission of actual graphic data (microfilm copy of drawings). Since the primary reason reported by auditing agencies for noncompetitive procurement at ASO is lack of technical data, acquisition of this equipment will substantially alleviate this problem by providing rapid access to the massive technical data bank located at the Naval Air Technical Services Facility (NATSF), Philadelphia.

Aircraft Industrial Facilities - FY 1985 $55.8 million; FY 1986 $56.2 million

The FY 1985 budget request for Aircraft Industrial Facilities is $55.8 million and the FY 1986 authorization request is $56.2 million. These funds are required for the following categories of equipment:

	(Dollars in Millions) FY 1985	FY 1986
Calibration Equipment	$37.1	$38.2
Contractor Facilities	18.7	18.0
Total Aircraft Industrial Facilities	$55.8	$56.2

Calibration Equipment

The calibration program provides the fleet with a means to ensure that Support Equipment (SE) is operational and accurate. Calibration is the process of periodically comparing the performance of items of SE to that of equipment of higher accuracy called standards and making adjustments to the SE equipments as required.

Calibration funds are used to procure the initial outfitting of calibration standards and ancillary equipment required to support SE. Items procured with these funds are used at approximately 100 fleet "I" level calibration activities, 30 NAVAIR calibration laboratories and annexes, five NAVAIR standards laboratories and the Metrology Engineering Center (MEC).

Standards for "I" level fleet calibration activities are used to expand capabilities, replace time-worn and obsolete equipment, improve performance, and reduce man-hour efforts. Standards procured for the depot level calibration and standards laboratories are used to automate and improve certain calibration procedures in order to reduce man-hour requirements and to expand calibration capabilities to additional laboratories.

Budget authority of $37.1 million is requested for FY 1985 and authorization for $38.2 million in FY 1986 is requested for this program.

Contractor Facilities

The FY 1985 budget request of $18.7 million for Contractor Facilities and the FY 1986 authorization request of $18.0 million will provide:

(a) Capital maintenance, modernization, improvements, emergency repairs and fire protection for government-owned, aircraft-producing industrial plants. Facilities management contracts require that the government fund capital maintenance projects as required. These projects apply at Naval Weapons Industrial Reserve Plants (NWIRPs) at Bloomfield, Conn.; Dallas, Texas; Bethpage, New York; and St. Louis, Missouri.

(b) Replacement/restoration and capital maintenance of government-owned production equipment in use on Navy programs. Inefficient equipment is replaced when the contractor is unwilling or unable to fund the project or the projects will reduce end-item costs to the government and improve the industrial readiness posture, or when capital maintenance is required in accordance with contractual obligation. New machine tools procured are peculiar to the aerospace industry, producing complex aerospace parts at reduced costs. The reduced costs permit recovery of the investment in three and one-half years.

(c) Procurement of additional production facilities to support programs for new weapons systems and/or to expand present production capabilities that are not supported by private enterprise.

All of the above must include provisions for compliance with the Occupational Safety and Health Act of 1970, P.L. 91-596, and the Environmental Protection Act as implemented by DOD Instruction 5030.52, 28 April 1972.

War Consumables - FY 1985 $28.7 million; FY 1986 $65.0 million

The FY 1985 budget request of $28.7 million and the FY 1986 authorization request of $65.0 million provide for procurement of bomb racks, Improved Multiple Ejection and Triple Ejection Racks (IMER-ITERs), adapter kits, external fuel tanks, and fuel tank modifications. The procurement programs for these items will buy increments of inventory objectives which are determined by such factors as the numbers and types of using aircraft, the mission of aircraft, and attrition and pipeline requirements. The following items are requested:

	FY 1985		FY 1986	
	Qty	Amt	Qty	Amt
BRU-41/42 Retrofit	-	$18,637	-	$21,587
BRU-41 (IMER)	240	4,192	22	404
300-Gallon Ext. Fuel Tanks	-	-	221	1,335
60-Gallon Ext. Fuel Tanks	58	291	-	-
Air Refueling Stores	1	4,800	99	41,000
External Fuel Tank Fins Modification	-	280	-	118
Production/Engineering Support	-	500	-	556
Total		$28,700		$65,000

Other Production Charges - FY 1985 $49.0 million; FY 1986 $59.5 million

The FY 1985 budget request for Other Production Charges is $49.0 million. The FY 1986 authorization request is $59.5 million. These funds will provide the following:

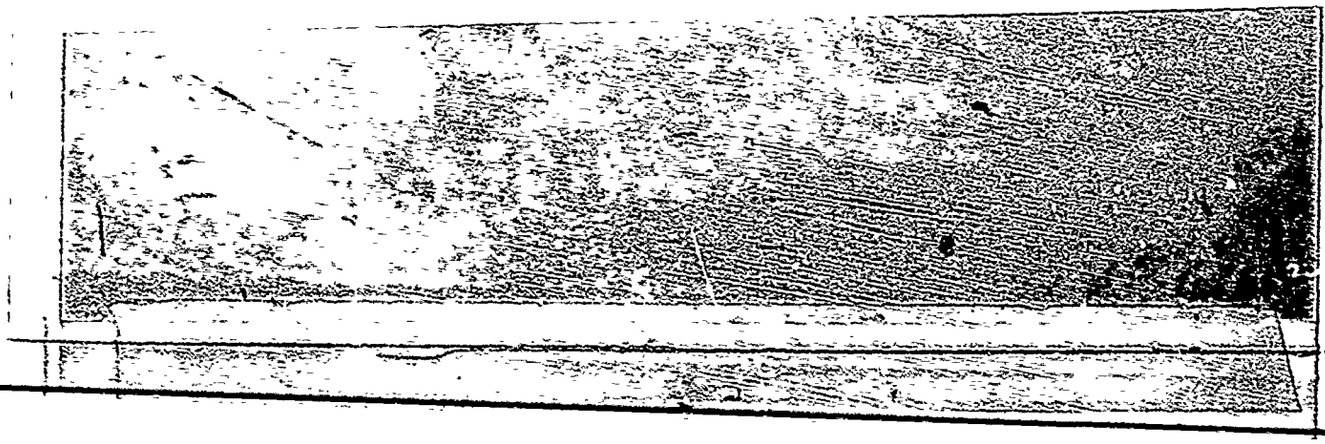
(a) $21.8 million in FY 1985 and $20.8 million in FY 1986 for Government-Furnished Equipment (GFE) production support which includes testing services, production data reviews, technical publications, repair of damaged or defective GFE, and procurement of Navy Stock Fund items necessary for fleet installation of technical directives (i.e., minor modification kits and other hardware changes).

(b) $1.3 million in FY 1985 and $10.1 million in FY 1986 for procurement of certain Navy avionics equipment for installation in Coast Guard aircraft.

(c) $10.8 million in FY 1985 and $12.2 million in FY 1986 for procurement of reconnaissance and other aerial cameras.

(d) $1.5 million in FY 1985 and $1.5 million in FY 1986 for procurement of instrumentation packages used by aircraft participating in Mobile Sea Range exercises.

(e) $13.6 million in FY 1985 funding and $14.9 million in FY 1986 for pods for the Tactical Aircrew Combat Training System (TACTS).



COMPARISON OF FY 1984 PROGRAM REQUIREMENTS AS REFLECTED IN FY 1984
PRESIDENT'S BUDGET WITH FY 1984 PROGRAM REQUIREMENTS SHOWN IN FY 1985 PRESIDENT'S BUDGET

(In Thousands of Dollars)

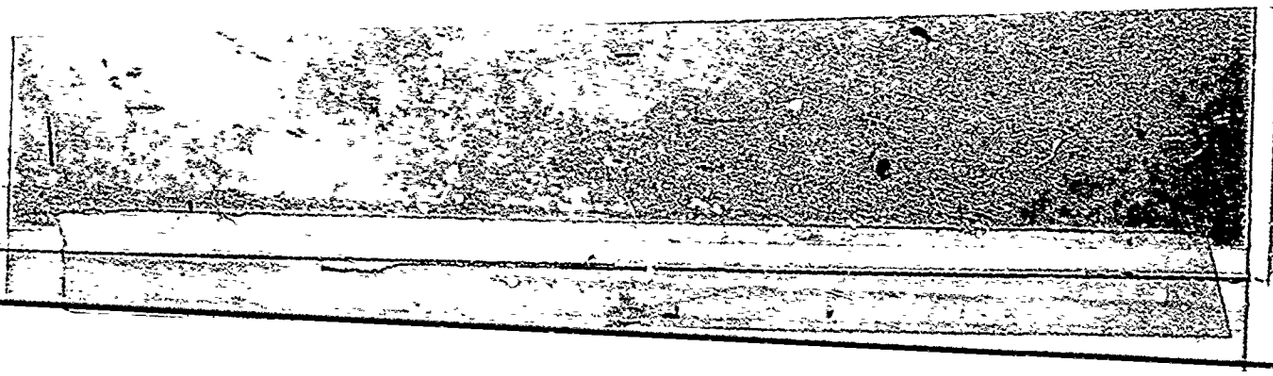
	Total Program Requirements per 1984 Budget	Total Program Requirements per 1985 Budget	Increase (+) or Decrease (-)
Combat Aircraft	$ 6,699.911	$ 6,026,598	-$673,313
Airlift Aircraft	203,238	180,008	- 23,230
Trainer Aircraft	105,932	64,432	- 41,500
Other Aircraft	149,766	165,066	+ 15,300
Modification of Aircraft	1,430,276	1,352,297	- 77,979
Aircraft Spares and Repair Parts	2,139,569	1,963,199	- 176,370
Aircraft Support Equipment and Facilities	398,608	413,008	+ 14,400
Reimbursable Program	30,000	40,000	+ 10,000
TOTAL FISCAL YEAR PROGRAM	$11,157,300	$10,204,608	-$952,692

EXPLANATION BY BUDGET ACTIVITY

Combat Aircraft (-$673.3 million)

The changes in this budget activity are primarily associated with the following Congressional action:

Program	Quantity	Amount
A-6E		-$ 3.0
EA-6B	+2	+ 47.2
EA-6B Adv. Proc.		+ 6.0
AV-8B	-5	-110.6
F-14A		-105.7
F/A-18		- 50.9
F/A-18 Adv. Proc		-164.3



Combat Aircraft cont'd	Program	Quantity	Amount
	CH-53E		- 41.5
	CH-53E Adv. Proc.		- .7
	SH-60		- 58.4
	P-3C		- 4.1
	P-3C Adv. Proc.		- 17.7
	EP-3C	-2	- 77.1
	EP-3 Adv. Proc.		- 12.4
	E-2C		- 32.7
	SH-2F	-6	- 51.9
	SH-2F Adv. Proc.		- 6.6
		-11	-$684.4

Additional reductions include $4.3 million from the AV-8B based on the dollar/pound exchange rate, $9.3 million from the SH-60B for contract savings, and $9.7 million from the F-14A for lower than anticipated engineering changes. A DD1415 Reprograming Action for an increase to P-3C Advance Procurement of $34.4 is being submitted due to additional long lead requirements for 9 P-3C aircraft in FY 1985 rather than the 6 aircraft presented in the FY 1985 column of the FY 1984 budget.

Airlift Aircraft (-$23.2 million)

Changes in the C-2A program account for this budget activity entirely. Congressional reduction of 2 aircraft and $22.0 million required a shift of $9.8 million from C-2A procurement to advance procurement to cover multiyear and termination liability requirements. A reduction of $1.2 million is possible due to a change in engines deliveries and minor pricing adjustments.

Trainer Aircraft (-$41.5 million)

The decreases in this budget activity are due to Congressional action as follows:

Program	Quantity	Amount
T-34	-38	-$35.8
Adversary Aircraft		- .4
VTX Adv. Proc.		- 4.9
TH-57		- .4
		-$41.5

Other Aircraft (+$15.3 million)

Changes in this budget activity are due to the following Congressional action.

Program	Quantity	Amount
KC-130T	+2	+$31.6
ECX Adv. Proc.		- 10.0
FEWSG A/C		- 6.3
		+$15.3

Modification of Aircraft (-$ 78.0 million)

Congressional action resulted in a net $76.7 million reduction as follows:

Program	Amount	Program	Amount
A-4 Series	-$.2	EP-3 Series	+$12.9
A-6 Series	-6.4	P-3 Series	-9.7
EA-6 Series	-6.8	S-3 Series	-4.9
A-7 Series	-11.3	E-2 Series	-4.2
AV-8	-3.8	T-34 Series	-.8
F-4 Series	-.8	T-39 Series	-2.1
RF-4 Series	-.6	C-2A Series	-.4
F-14A Series	-8.1	EC-130 Series	-.1
OV-10 Series	-.1	C-KC-130 Series	-9.2
F-18 Series	-2.1	FEWSG	-1.3
H-46 Series	-1.4	Various Mods	-.1
H-53 Series	-3.0	Power Plant Changes	-.1
H-1 Series	-1.2	Common ECM	-5.2
H-2 Series	-1.1	Common Avionics	-.5
H-3 Series	-4.1		-$76.7

In addition to the Congressional action reflected above, other decreases include: $2.9 million in the A-6 series due to deletion of the KA-6D Tanker Conversion Program and repricing of the Weapon Control System Inprovement, KA-6D R&M Improvement, and Vertical Display Indicator modification partially offset by a major rephasing of the CAINS/CNI program, repricing of the Weapons Integration effort and the addition of the AN/AAS-33 TSP modification; $.5 million in the EA-6 series reflecting repricing of the ALQ-99 Pods modification; $.4 million in the A-7 series resulting from deletion of the



Fuel Quantity Gauging System offset by the reestablishment of the AN/APR-43 modification and repricing of several smaller programs; $.5 million in the F-14 series attributable to cancellation of the Correction of Defects and Stinger Shark modifications; $.2 million in the F-18 series due to repricing of various programs; $.3 million in the H-1 series resulting from deletion of the Battery Fault effort and VH-1 door and AFCS program compensated for by repricing of the APR-44 and Fuel System modifications; $12.8 million in the EP-3 series identified for transfer to the P-3C advance procurement account; $2.8 million in the E-2 series related to deletion of the Water Injection program; $.3 million in the T-34 series reflecting deletion of the NICAD Battery program; $.4 million in the T-39 series due to cancellation of the Weather Radar and rephasing of the Service Bulletins modifications; $.3 million in the TH-57 series attributable to reduced requirements of the ECS and Yaw modification; $.3 million in the T-2 series related to downscoping of the Strobe Lights effort; $.1 million in the C-9 series attributable to repricing of the Configuration Update; $.1 million in the UC-12 series reflecting repricing of the FAA Certification program; $2.3 million in the EC-130 series due to repricing of the EMP Layer I modification; $.2 million in the K/C-130 series as a result of repricing the Strobe Lights and Fuel Indicator efforts; $.1 million in FEWSG series reflecting repricing of the ERA-3B ESM Receiver; and finally, $.5 million in the Power Plant Changes line due to minor pricing adjustments.

The decreases addressed above are partially offset by the following increases: $2.5 million in the A-3 series to continue the Service Life Improvement Program (SLIP) instituted during FY 1983; $1.1 million in the A-4 series reflecting repricing of the AN/ARN-118 TACAN program and small adjustments to other modifications within the line; $.7 million in the F-4 series due to repricing of the AN/ARC-159 Radio and Extended Range Visual Identification program; $8.8 million in the RF-4 series reflecting the addition of the Aft Cockpit Rewire and AN/APR-43 programs, partially offset by repricing of the AN/ALQ-162 modification; $.1 million in the OV-10 series as a result of general repricing; $.3 million in the H-2 series reflecting revised pricing; $9.9 million in the P-3 series in order to complete procurement of TACNAVMOD kits in keeping with Congressional intent; and $.3 million in the S-3 series resulting from the continuation of the FLIR R&M program, offset by repricing and rephasing of the Communication Control Group modification.

Aircraft Spares and Repair Parts (-$176.4 million)

The change in this budget activity results from Congressional reductions of $123.1 million and additional reductions totalling $53.3 million of which $43.3 million has been applied for intra-appropriation DD1415 Reprograming Actions and $10.0 million has been transferred out of the appropriation by DD1415.

Aircraft Support Equipment and Facilities (+$14.4 million)

The following adjustments are due to Congressional action:

Program	Amount
Common Ground Equipment	-$19.3
A/C Industrial Facilities	-.3
War Consumables	-.1
Other Production Charges	-.6
	-$20.3

Other adjustments reduced Aircraft Industrial Facilities by $1.0 million and increased Common Ground Equipment by $35.7 million, the latter of which is being submitted on a DD1415 Reprograming Action for increased Rapid Deployment Force requirements.

Reimbursable Program (+$10.0 million):

The increase in the reimbursable program is necessary to reflect improved estimates and projections that have been made since the original budget submission a year ago.

COMPARISON OF FY 1984 FINANCING AS REFLECTED
IN FY 1984 BUDGET WITH FY 1984 FINANCING AS
SHOWN IN FY 1985 BUDGET

(In Thousands of Dollars)

	Financing Per FY 1984 Budget	Financing Per FY 1985 Budget	Increase (+) or Decrease (-)
Program Requirements (Total)	$11,157,300	$10,204,608	-$ 952,692
Program Requirements (Service account)	11,127,300	10,164,608	- 962,692
Program Requirements (Reimbursable)	30,000	40,000	+ 10,000
Less:			
Anticipated Reimbursements	30,000	40,000	+ 10,000
Reprogramming from prior year budget plans			
Unobligated balance available from prior year to finance new budget plans			
Transferred from other accounts			
Add:			
Unobligated balance available to finance subsequent year budget plans			
Transferred to other accounts		-10,000	-10,000
Appropriation	$11,127,300	$10,174,608	-$ 952,692

EXPLANATION OF CHANGES IN FINANCING

The $952,692,000 decrease in program requirements is the result of congressional reductions of $952,692,000 including distribution of the reduced escalation budget amendment and general congressional assessments.

COMPARISON OF FY 1983 PROGRAM REQUIREMENTS AS REFLECTED IN FY 1984
PRESIDENT'S BUDGET WITH FY 1983 PROGRAM REQUIREMENTS SHOWN IN FY 1985 PRESIDENT'S BUDGET

(In Thousands of Dollar)

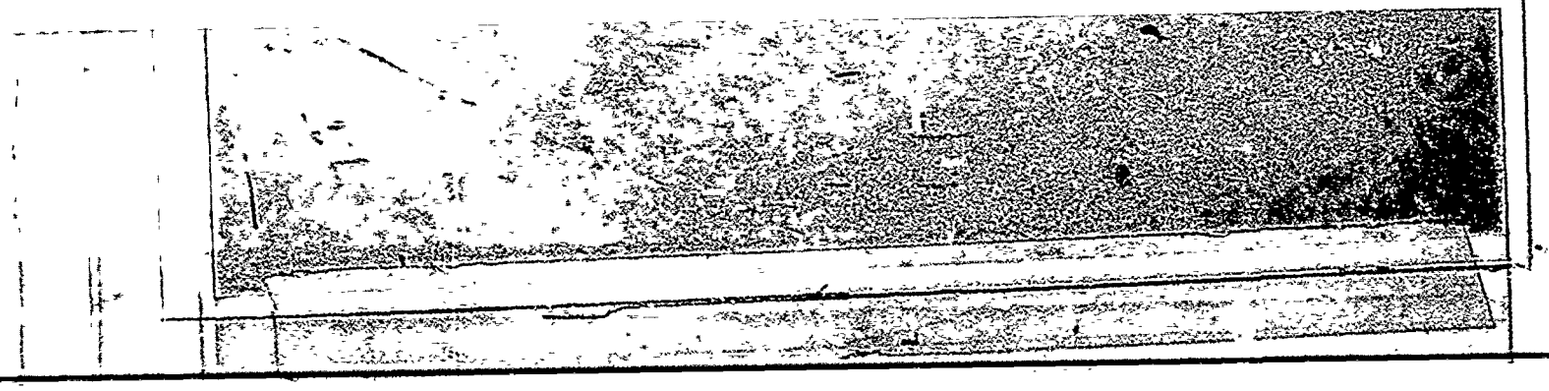
	Total Program Requirements per 1984 Budget	Total Program Requirements per 1985 Budget	Increase (+) or Decrease (-)
Combat Aircraft	$ 6,271,300	$ 6,207,167	-$ 64,133
Airlift Aircraft	284,000	278,544	- 5,456
Trainer Aircraft	57,200	50,333	- 6,867
Other Aircraft	65,900	75,750	+ 9,850
Modification of Aircraft	1,177,913	1,160,933	- 16,980
Aircraft Spares and Repair Parts	1,987,914	1,959,214	- 28,700
Aircraft Support Equipment and Facilities	424,100	423,511	- 589
Reimbursable Program	30,000	35,556	+ 5,556
TOTAL FISCAL YEAR PROGRAM	$10,298,327	$10,191,008	-$107,319

EXPLANATION BY BUDGET ACTIVITY

Combat Aircraft (-$ 64.1 million)

Of the decrease in this budget activity, $77.8 million is associated with DD 1415 Reprograming Actions transferring funds out of the appropriation as follows:

Program	Amount
A-6E	-$ 2.6
EA-6B	- 4.6
AV-8B	- 1.4
F-14A	- 45.7
F/A-18	- 17.8
CH-53E	- 1.9
SH-60	- .6
E-2C	- 2.4
SH-2F	- .8
	-$77.8



Other changes include the following increases: $123.3 million submitted on a DD 1415 for approval to finalize the F-18 airframe contract; $2.5 million to cover CH-53E tooling refurbishment requirements; $5.2, $4.0 and $5.1 million for increased advance procurement CFE and GFE coverage for CH-53E, P-3C, and E-2C respectively; $14.0 million returned to the SH-60B for support requirements when these funds were denied by Congress as a source for reprograming; and $6.7 million for E-2C shipboard support equipment.

Additional decreases more than offset the above as follows: $24.6 from EP-3C Advance Procurement when the DD 1415 Reprograming Action was denied and contract savings from the following programs, A-6E ($7.9 million), AV-8B ($10.6 million), F-14A ($85.1 million), P-3C ($5.0 million), and SH-2F ($13.9 million).

Airlift Aircraft (-$5.5 million)

The decrease in this budget activity results from C-2A program savings (-$4.2 million), increased C-2 advance procurement requirements (+$.8 million), and a shift from the C-9 aircraft account of $2.1 million to the spares account where it should have been budgeted.

Trainer Aircraft (-$6.9 million)

The decrease in this budget activity results from $4.5 million contract savings in the T-34 program and a $2.4 million less-than-anticipated cost on the TH-57 aircraft.

Other Aircraft (+$ 9.8 million)

The increase in this budget activity is the result of a $2.0 million cost growth on the EC-130Q program and $7.8 million increase to fully fund the purchase of 2 KC-130s aircraft added by Congress.

Modification of Aircraft (-$17.0 million)

The following decrease has been included on DD 1415 Reprograming Action and transferred out of the appropriation:

EC-130 Series Mods -$3.6 million

Additional decreases include: $14.6 million in the A-6 series, $4.8 million in the EA-6 series and $.6 million in the F-4 series which were transferred to the F/A-18 production program in conjunction with the pending DD 1415 reprograming action; $1.7 million in the OV-10 series due to programmatic slippage of the Navigation System modification; $.8 million in the H-53 series as a result of rephasing the AN/ALQ-157 (v) IR Jammer; $5.3 million in the H-1 series attributable to cost savings in the AN/ASC-26 program and developmental difficulties in the APR-44 modification which resulted in program slippage; $5.6 million in the P-3 series as a result of favorable contract prices for the IACS, HARPOON, AN/AQA-7 Improvement and PARKHILL XY-75 programs; $6.1 million in the E-2 series attributable to a lower-than-anticipated price on the Omnibus modification contract with Grumman; $1.3 million in the T-34 series due to rephasing of the Emergency Fuel Control and Landing Gear Actuation System, and cancellation of the Fire Extinguisher modification; $.8 million in the T-39 series resulting from termination of the Configuration Update program; $.6 million in the C-9 series due to programmatic slippage in the FAA Configuration Update; $2.5 million in the EC-130 series and $4.2 million in the C/KC-130 series attributable to fortuitous negotiation of the SLEP contract; $.9 million in the Common ECM equipment line resulting from a slight repricing of the AN/ALQ-126B; and $.7 million attributable to repricing of a variety of modifications in several accounts including the US-3 series, T-44 series, TH-57 series, C-1 series, UC-12 series and the Various series.

The decreases listed above have been partially offset by the following increases: $1.1 million in the A-3 series to cover a cost growth related to the EA-3B Sustainability effort and to institute the Service Life Improvement Program (SLIP); $.3 million in the A-4 series to initiate the Altitude Encoding Computer (CPU-66) modification; $.9 million in the A-7 series to cover a cost growth related to PGSE for the TF-41 HELP modification; $.3 million in the AV-8 series for a cost growth in the F-402 engine conversion program; $.3 million in the RF-4 series to initiate the Cockpit Rewire safety change, the cost of which was partially offset by savings in the APD-10 modification; $9.5 million in the F-14 series to accelerate the Structural Improvement program and increase the scope of the classified Link-4A modification; $.3 million in the F-18 series to cover the contract price of the Dual Chamber Landing Gear modification; $2.0 million in the H-46 series to accomodate increased tooling requirements for the S,R&M program; $.4 million in the H-2 series for the AN/ARC-159 radio repricing and the Tail Pylon/Drive Train Improvements program; $5.9 million in the H-3 to incorporate the Automatic Stabilization Equipment Improvement within the SLEP program and to continue the classified CROWN helicopter modification; $6.6 million in the EP-3 series attributable to restoration of Sensor Update funds offset by contract savings in the CILOP program; $2.9 million in the S-3 series to continue the FLIR R&M modification; $2.1 million in the FEWSG series to cover a cost growth in the RA to ERA-3B conversion; $3.3 million in the Common Avionics series to initiate the AN/ARC-186 radio, AN/AWW-4/8 Faceplate modification and Ground Proximity Warning System (GPWS) program; and finally, $.9 million in the Power Plant Changes series and $.3 million in the Safety modification series to cover cost growths in several programs.

Aircraft Spares and Repair Parts (-$28.7 million)

$30.5 million has been identified against Initial Spares and transferred by DD 1415 Reprograming Action out by the appropriation. Additionally, Initial Spares have been reduced by $10.1 million and Replenishment Spares have been increased by $11.9 million.

Aircraft Support Equipment and Facilities (-$.6 million)

The decrease in this budget activity results from a DD 1415 Reprograming Action transferring $1.0 million from the Common Ground Equipment line (Training Equipment subline) and the appropriation, partially offset by an increase in Aircraft Industrial Facilities requirements (+$.4 million).

Reimbursable Program (+$5.6 million):

The $5.6 million increase adjusts the reimbursable program to reflect actual orders received in lieu of those anticipated.

COMPARISON OF FY 1983 FINANCING AS REFLECTED
IN FY 1984 BUDGET WITH FY 1983 FINANCING AS
SHOWN IN FY 1985 BUDGET

(In Thousands of Dollars)

	Financing Per FY 1984 Budget	Financing Per FY 1985 Budget	Increase (+) or Decrease (-)
Program Requirements (Total)	$10,298,327	$10,191,008	-$ 107,319
Program Requirements (Service account)	10,268,327	10,155,452	- 112,875
Program Requirements (Reimbursable)	30,000	35,556	+ 5,556
Less:			
Anticipated Reimbursements	30,000	35,556	+ 5,556
Reprogramming from prior year budget plans			
Unobligated balance available from prior year to finance new budget plans			
Transferred from other accounts			
Add:			
Unobligated balance available to finance subsequent year budget plans			
Reduction pursuant to P.L. 97-377	- 59,100	- 59,100	
Transferred to other accounts	- 88,680	- 201,555	- 112,875
Appropriation	$10,416,107	$10,416,107	-

Status of Aircraft Modification Programs
FY 1984 Modification of Aircraft
Programs as of 31 October 1983

(Thousands of Dollars)

Program	Appropriated 1/	Reprograming	Total Program 2/ Value	Total Obligations	Total Expenditures
A-3 Series	3,996	+ 2,433	6,429		
A-4 Series	14,624	+ 1,089	15,713		
A-6 Series	143,065	- 2,928	140,137		
EA-6 Series	74,072	- 500	73,572		
A-7 Series	127,224	- 492	126,732		
AV-8A	3,333	-	3,333		
F-4 Series	17,637	+ 649	18,286		
RF-4 Series	8,358	+ 8,785	17,143		
F-14A	162,334	- 500	161,834		
F-8 Series	200	-	200		
F-5 Series	1,748	-	1,748		
OV-10	8,577	- 120	8,457		
F-18 Series	29,681	- 1,047	28,634		
H-46 Series	116,175	-	116,175		
H-53 Series	20,653	-	20,653		
H-1 Series	38,828	- 307	38,521		
H-2 Series	11,013	+ 257	11,270		
H-3 Series	54,562	-	54,562		
EP-3 Series	24,859	- 11,959	12,900		
P-3 Series	147,501	+ 11,700	159,201		
S-3A	34,833	+ 280	35,113		
US-3	1,060	- 45	1,015		
E-2 Series	60,512	- 3,849	56,663		
T-38 Series	500	-	500		
T-34 Series	257	- 245	12		
T-44	100	-	100		
T-39 Series	437	- 437	-		
TH-57	2,037	- 416	1,621		
T-2	542	- 303	239		

Status of Aircraft Modification Programs
FY 1984 Modification of Aircraft
Programs as of 31 October 1983

(Thousands of Dollars)

Program	Appropriated 1/	Reprograming	Total Program 2/ Value	Total Obligations	Total Expenditures
C-9 Series	2,017	- 151	1,866		
C-1A	120	-	120		
C-2	660	-	660		
UC-12	300	- 100	200		
EC-130 Series	12,286	- 2,298	9,988		
C/KC-130 Series	13,888	- 166	13,72		
FEWSG	30,079	- 131	29,948		
C-131	2,735	-	2,735		
Various	7,875	-	7,875		
Power Plant Changes	11,907	- 500	11,407		
Misc. Safety Changes	6,007	-	6,007		
Common ECM Equipment	144,172	-	144,172		
Common Avionics Changes	12,763	+ 71	12,834		
TOTAL B.A. 5	1,353,527	- 1,230	1,352,297		

1/ Includes distribution of the reduced escalation budget amendment and general congressional assessments.
2/ FY 1984 Column of FY 1985 President's Budget

Status of Aircraft Modification Programs
FY 1983 Modification of Aircraft
Programs as of 31 October 1983

(Thousands of Dollars)

Program	Appropriated 1/	Reprograming	Total Program 2/ Value	Total Obligations	Total Expenditures
A-3 Series	7,300	+ 994	8,294	3,632	1,025
A-4 Series	24,723	+ 175	24,898	20,447	7,340
A-6 Series	175,345	- 31,882	143,463	110,037	28,296
EA-6 Series	85,177	- 1,320	83,857	56,543	3,732
A-7 Series	95,400	+ 1,355	96,755	63,816	5,844
AV-8A	10,900	+ 287	11,187	11,144	289
F-4 Series	22,700	- 324	22,376	20,287	759
RF-4 Series	29,470	- 2,051	27,419	25,643	71
F-14A	141,924	+ 13,508	155,432	140,756	13,350
F-8 Series	1,200	- 445	755	747	25
F-5 Series	200	+ 10	210	-	-
OV-10	1,700	- 1,665	35	33	10
F-18 Series	4,981	+ 7,223	12,204	10,558	7,395
H-46 Series	51,000	+ 5,559	56,559	49,537	6,708
H-53 Series	21,479	- 7,899	13,580	10,985	664
H-1 Series	18,900	- 3,594	15,306	10,948	612
H-2 Series	3,900	+ 418	4,318	4,211	464
H-3 Series	20,600	+ 5,855	26,455	25,900	5,643
EP-3 Series	28,200	- 2,975	25,225	11,658	11
P-3 Series	116,390	- 13,154	103,236	85,782	10,216
S-3A	26,152	+ 101	26,253	20,296	4,326
US-3	92	- 92	-	-	-
E-2 Series	44,887	- 5,868	39,019	37,283	-
T-34 Series	1,500	- 1,350	150	-	-
T-44 Series	200	- 120	80	35	2
T-39 Series	1,500	- 778	722	269	395
TH-57	300	- 300	-	-	-
T-2	100	- 20	80	71	-
C-9 Series	1,400	- 1,202	198	4	-

Status of Aircraft Modification Programs
FY 1983 Modification of Aircraft
Programs as of 31 October 1983

(Thousands of Dollars)

Program	Appropriated 1/	Reprograming	Total Program 2/ Value	Total Obligations	Total Expenditures
C-1A	200	- 200	-	-	-
UC-12	200	- 50	150	73	-
EC-130 Series	50,079	- 6,701	43,378	16,693	2,585
C/KC-130 Series	15,187	- 4,327	10,860	4,297	151
FEWSG	33,900	+ 2,266	36,166	34,620	1,694
C-131	100	+ 25	125	89	14
Various	10,800	+ 1,308	12,108	12,092	670
Power Plant Changes	11,700	- 437	11,263	4,695	598
Misc. Safety Changes	5,400	+ 302	5,702	4,722	286
Common ECM	139,763	- 5,832	133,931	63,159	1,177
Common Avionics Equipment	5,858	+ 3,326	9,184	3,448	345
TOTAL B.A. 5	1,210,807	- 49,874	1,160,933	864,510	104,697

1/ Includes application of Consultants, Studies and Analyses, BP/IR&D, and General Modification Reductions.
2/ FY 1983 column of FY 1985 President's Budget.

Status of Aircraft Modification Programs

FY 1982 Modification of Aircraft Programs as of 31 October 1983 (Thousands of Dollars)

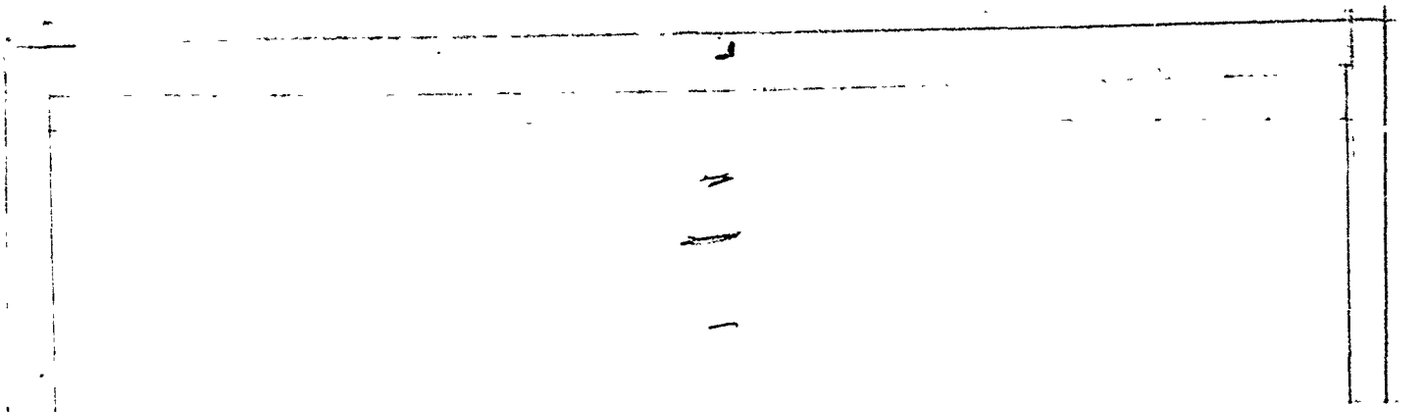
Program	Appropriated	Reprograming	Program Value	Total Obligations	Total Expenditures
A-3 Series	22,800	+ 2,500	25,300	23,243	8,302
A-4 Series	46,500	- 21,344	25,156	25,001	15,924
A-6 Series	111,100	+ 379	111,479	106,726	45,851
EA-6 Series	49,800	+ 511	50,311	41,744	16,100
A-7 Series	95,000	+ 5,732	100,732	89,556	36,068
AV-8A	13,900	+ 8,048	21,948	17,356	7,195
F-4 Series	34,400	+ 3,280	37,680	36,324	22,142
RF-4 Series	24,500	- 12,039	12,461	9,020	2,522
F-14A	91,400	+ 1,073	92,473	89,711	79,550
F-8 Series	600	+ 885	1,485	1,217	83
F-5 Series	1,100	- 1,051	49	48	17
F/A-18	2,800	- 258	2,542	2,428	6,156
H-46 Series	42,300	+ 5,980	48,280	47,669	18,641
H-53 Series	6,000	+ 4,434	10,434	8,777	2,117
H-1 Series	10,600	- 842	9,758	8,961	4,683
H-2 Series	7,800	- 16	7,784	7,667	3,294
H-3 Series	2,200	+ 3,212	5,412	5,320	2,699
EP-3 Series	11,500	- 73	11,427	10,60[illegible]	4,080
P-3 Series	104,400	- 19,537	84,863	83,099	49,856
S-3	26,500	+ 749	27,249	26,588	11,121
E-2 Series	24,700	- 2,179	22,521	21,954	13,724
T-34 Series	300	- 300	-	-	-
T-44 Series	500	- 500	-	-	-
T-39 Series	200	+ 181	381	339	1,346
C-9 Series	200	+ 269	469	310	206
C-1A	200	+ 10	210	182	114
EC-130 Series	37,000	- 11,349	25,651	17,755	7,378
C-130 Series	15,100	- 3,965	11,135	11,067	9,639
FEWSG	16,900	+ 9,047	25,947	25,217	9,059
Various	19,700	- 13,700	6,000	3,443	939
Power Plant Changes	10,200	- 153	10,047	8,942	2,750
Misc Safety Changes	1,200	+ 3,103	4,303	4,150	2,772
Common ECM Equipment	96,500	+ 9,212	105,712	84,991	29,710
Common Avionics Changes	1,300	+ 1,219	2,519	2,293	1,294
TOTAL B.A. 5	929,200	- 27,482	901,718	821,702	415,334

FY 1985 CONGRESSIONAL APN-5 INDEX

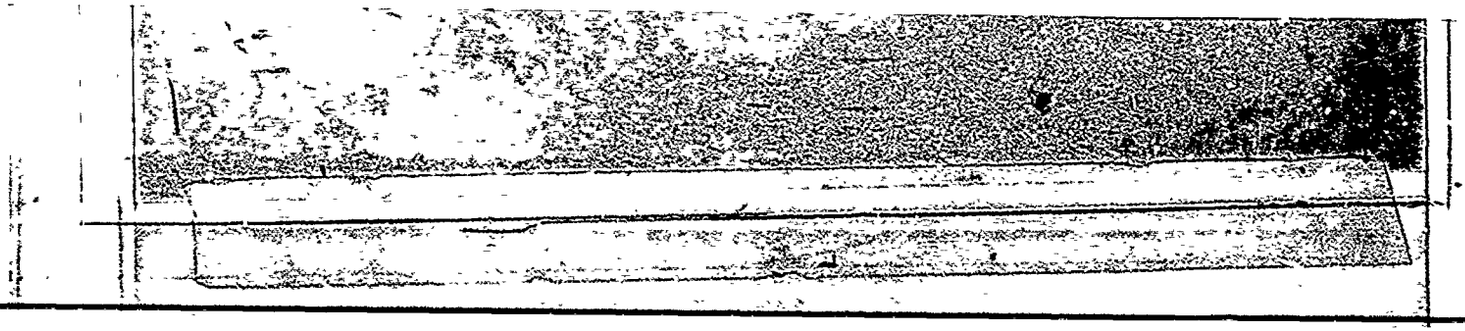
Page No.	OSIP No.	Title
A-3 Mod - P-1 Line Item 36		
5-10	130-83	Service Life Improvement (Program) (SLIP) (EA-3B, TA-3B, KA-3, ERA-3B, NRA-3B, NA-3B, RA-3B, VA-3B, A-3B)
5-12	86-85	Communications and Intercom. System Update (EA-3B, TA-3B, ERA-3B, KA-3B, NRA-3B, VA-3B, RA-3B, NA-3B, A-3B)
5-14	87-85	Air Turbine Motor (ATM) Improvements (EA-3B, TA-3B, ERA-3B, NRA-3B, NA-3B, RA-3B, VA-3B, KA-3B, A-3B)
A-4 Mod - P-1 Line Item 37		
5-15	4-83	AN/ALQ-162 Countermeasures Set (A-4M)
5-17	6-83	AN/ARN-118 TACAN (TA-4F/TA-4J)
5-18	129-83	Constant Frequency Generator Improvement Program (TA-4F/J)
5-19	1-84	Digital Air Data Computer System Improvement (A-4M)
5-21	36-84	AGM-65 MAVERICK Missile System Provisions (A-4M)
5-22	64-85	AN/ARC-159(V)5 UHF Transceiver (TA-4J)
5-23	65-85	AN/APN-194 Radar Altimeter System (TA-4F/J)
5-24	66-85	AN/AJB-3 Reliability Improvement and Equipment Life Extension (TA-4F/J, OA-4M)
5-25	67-85	AN/APR-43 (A-4M)
A-6 Mod - P-1 Line Item 38		
5-26	1-76	Target Recognition and Attack Multisensor (TRAM) (A-6E)
5-28	9-77	ASN-92 (CAINS) and CNI Combined (Configuration Update) (A-6E)
5-30	1-78	AN/IP-722F Vertical Display Indicator (VDI) (A-6E/KA-6D)
5-32	10-79	Rewing (SLEP) (A-6E)
5-34	102-80	Weapon Control System Improvement (A-6E)
5-36	5-82	Reliability, Maintainability (R&M) and Service Life Extension Program (SLEP) (KA-6D)
5-38	8-83	Weapons Integration (A-6E)
5-39	9-83	Radar Data Converter Improvements (A-6E)
5-40	51-84	AN/ALR-67 Radar Receiving Set, Countermeasures (A-6E)
5-42	140-84	AN/AAS-33A Detecting and Ranging Set, Incorporation of TSP-III Access Cover (A-6E)
5-44	50-85	Global Positioning System (GPS) (A-6E)
5-46	52-85	MAVERICK Integration (A-6E)
5-47	7-86	Combination Radio (AN/ARC-182) (KA-6D)

Page No.	OSIP No.	Title
A-6 Mod - P-1 Line Item 38 (Cont'd)		
5-48	8-86	HARM (A-6E TRAM)
5-50	9-86	FLAP/SLAT System Improvement (A-6E, KA-6D, EA-6A)
5-51	10-86	Stand-off Air-to-Ground Weapons (A-6E TRAM)
5-52	11-86	Strobe Lights (KA-6D/A-6E)
5-54	12-86	Digital Fuel Quantity (A-6E, KA-6D)
5-56	13-86	Analog-to-Digital Converter (A-6E)
5-58	14-86	Global Positioning System (GPS) (KA-6D)
EA-6 Mod - P-1 Line Item 39		
5-60	19-79	ALQ-99 Pods (EA-6B)
5-62	13-81	Weapons System Update (ALQ-76/86) (EA-6A)
5-64	14-81	ICAP-I Update Program (Signal Data Converter/Digital Display/Inertial Navigation/AN/AYK-14 Computer) (EA-6B)
5-66	53-82	Radar and Navigation Update (EA-6A)
5-68	32-85	Catapult and Arrestment Fatigue Life Extension (Structural Improvements) (EA-6B)
5-70	51-85	AN/ALQ-76 Pods (EA-6A)
5-71	38-86	Computer Interface Unit (CIU) and Encoder Update (ENC) (EA-6B)
A-7 Mod - P-1 Line Item 40		
5-73	26-79	AN/APR-43 (A-7E)
5-75	13-80	HARM (A-7E/TA-7C (with FLIR Provisions))
5-77	16-81	TF-41 Engine Hot Section Extended Life Program (HELP) (A-7E)
5-80	9-82	Improvement of Fuel Quantity Gaging System (A-7E)
5-81	94-82	AN/APQ-126 Radar Set (A-7E/C, TA-7C)
5-83	123-83	Re-engine with TF41 (TA-7C, EA-7L)
5-84	52-84	AN/ASN-90 Inertial Measurement Set Update (A-7E, TA-7C, EA-7L)
5-85	141-84	AN/ALQ-162 Countermeasures Set (A-7E)
5-87	38-85	I^2R MAVERICK Airframe Provisions (A-7E FLIR Configured)
5-89	62-85	Model TF41-A-2B/402B Engine Inlet Guide Vane (IGV) Redundant Control System (A-7E)
5-91	25-86	IMER/ITER Pylon Cable (Harness Improvement Project) (A-7C, A-7E, TA-7C)

Page No.	OSIP No.	Title
AV-8 Mod - P-1 Line Item 41		
5-93	16-84	Structural Integrity (AV-8A/AV-8C)
5-95	88-85	Digital Engine Control System (DECS) (AV-8B)
5-96	89-85	Engine Monitoring System (EMS) (AV-8B)
F-4 Mod - P-1 Line Item 42		
5-98	60-82	AN/ARC-159 Radio (F-4S)
5-99	21-84	AN/AWG-10A Improved Simulated Doppler Signal (F-4S)
RF-4 Mod - P-1 Line Item 43		
5-101	41-84	AN/APQ-99 Technical Obsolescence Update Program (RF-4B)
5-103	128-84	AN/ALQ-162 Countermeasures Set (RF-4B)
5-104	142-84	AN/APR-43 (RF-4B)
5-105	39-85	Follow-On Structural Fatigue (RF-4B)
5-106	92-85	KS-153 Camera Provisions (RF-4B)
F-14 Mod - P-1 Line Item 44		
5-108	25-81	PHOENIX AN/AWG-9, Computer Expanded Memory (F-14A)
5-110	15-82	TF-30-P-414A Package (F-14A)
5-112	17-82	Upgrade Wiring and Wiring Components (F-14A)
5-114	62-82	Television Camera Sight (TCS) (F-14A)
5-115	115-82	Structural Fatigue Modification (F-14A)
5-117	152-83	Structural Improvements (F-14A)
5-119	9-84	Increased Wall Thickness of Main Landing Gear (F-14A)
5-121	45-84	Vertical Fin-Substructure (F-14A)
5-122	43-85	Weapons Rail Operational Improvement (F-14A)
5-123	3-86	AN/ARC-182 Radio (F-14A)
5-125	6-86	Installation of ALQ-126 Countermeasures Set (F-14 (TARPS Configured))
F-5 Mod - P-1 Line Item 46		
5-126	29-81	Structural Fatigue Improvement Program (F-5E/F)



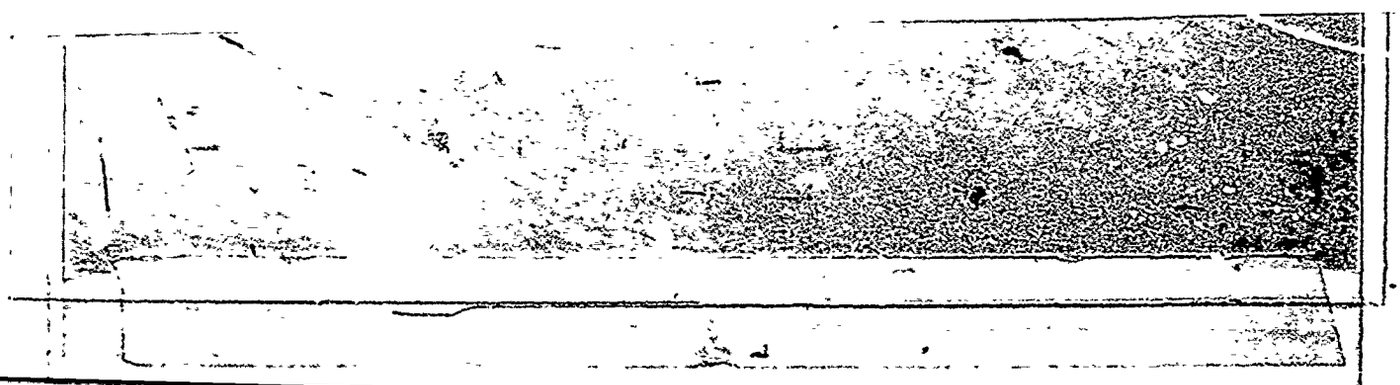
Page No.	OSIP No.	Title
OV-10 Mod - P-1 Line Item 47		
5-127	40-83	Navigation System (OV-10D)
5-128	13-84	AN/ALQ-144 IR Jammer (OV-10A/D)
5-129	61-84	OV-10A to D Conversion (OV-10A)
5-131	42-85	Service Life Extension (OV-10D)
5-132	4-86	HELLFIRE Missile Control System (OV-10D)
F-18 Mod - P-1 Line Item 48		
5-133	33-83	Dual Chamber Main Landing Gear Shock Absorber (F/A-18, TF/A-18)
5-134	6-84	Non-Cooperative Target Recognition (NCTR) (F/A-18, TF/A-18)
5-136	11-84	Corr. of Discrep. Identified during Preliminary Eval. and Subsequent Flight Test Programs (F/A-18, TF/A-18)
5-138	55-84	Video Recording System (VRS) (F/A-18, TF/A-18)
5-139	66-84	AN/ALR-67 Radar Receiving Set, Countermeasures (F/A-18)
5-141	34-85	Automatic Wingfuel Recirculation (F/A-18, TF/A-18)
5-143	35-85	Special Weapons (F/A-18, TF/A-18)
5-144	36-85	AN/ALQ-126B Provisions (F/A-18, TF/A-18)
5-145	40-85	Double Density AN/AYK-14 Mission Computer (F/A-18, TF/A-18)
5-146	61-85	Ejection Seat Improvement (F/A-18, TF/A-18)
5-147	24-86	OMNIBUS Weapons (F/A-18, TF/A-18)
H-46 Mod - P-1 Line Item 49		
5-149	22-77	AN/ALQ-157(V) IR Jammer (CH-46E)
5-151	9-78	Fiberglass Blades (CH-46D/E/F, UH/CH/HH-46A)
5-153	31-81	Safety, Reliability and Maintainability (S,R&M) Update (CH/UH/HH-46)
5-155	21-82	AN/ARN-118 TACAN (HH-46A, CH-46D, CH-46E, UH-46D)
5-156	66-82	Night Vision Goggles (CH-46E)
5-158	42-83	Engine Air Particle Separators (CH-46E)
5-160	63-84	Ground Proximity Warning System (CH-46E, CH-46D, HH-46A, UH-46A/D, CH-46A)
5-161	21-85	Emergency Flotation System (CH-46E/UH-46D/CH-46D/HH-46A/NCH-46A)
5-162	45-85	Improvements to Engine Cordition Control System (CH-46E, UH-46D, CH-46D, HH-46A, NCH-46A)
5-163	1-86	Multi-Mode Receiver (CH-46E)



Page No.	OSIP No.	Title
H-53 Mod - P-1 Line Item 50		
5-164	69-79	AN/ALQ-157(V) IR Jammer (CH-53A/D)
5-166	46-80	LTN-211 OMEGA/VLF Navigation Set (CH-53E, CH-53D, CH-53A, RH-53D)
5-168	67-82	Night Vision Goggles (CH-53A/D, RH-53D, CH-53E)
5-170	43-83	Crashworthy Armored Pilot Seats (CH-53A, CH-53D, RH-53D)
5-172	65-84	Crashworthy Fuel System (CH-53A, CH-53D, RH-53D)
5-173	67-84	Ground Proximity Warning System (GPWS) (CH-53A, CH-53D, RH-53D)
5-174	68-84	Aircraft Survivability Improvement (CH-53A, CH-53D, RH-53D, CH-53E)
5-176	47-85	Modified Main Rotor Head Damper (CH-53E)
5-177	2-86	AN/ARC-182(V) VHF-UHF, AM/FM Transceiver (CH-53A; CH-53D; RH-53D; CH-53E)
5-178	15-86	AN/APR-39A(V)1 Improved Warning Receiver (CH-53E, RH-53D)
H-1 Mod - P-1 Line Item 51		
5-179	24-82	APR-44 (UH-1N)
5-180	68-82	Night Vision (UH-1N)
5-182	69-82	Night Vision (AH-1T/J)
5-184	117-83	AN/ALQ-136/APR-44 (AH-1J/T)
5-185	18-84	Radar Altimeter Readout (AH-1J, AH-1T)
5-186	19-84	Crashworthy Fuel System (AH-1T, AH-1J)
5-187	20-84	HELLFIRE Weapon System (AH-1J/T)
5-189	57-84	Wire Strike Protection (UH-1N, AH-1T, AH-1J)
5-190	70-84	Maneuvering Load Acceleration Capability (AH-1T, AH-1J)
5-191	71-84	Crashworthy Pilot Seats (UH-1N)
5-193	23-85	Night Targeting System (AH-1T)
5-194	95-85	Position Location Reporting System (PLRS) (UH-1N)
5-195	96-85	Navigation System (AH-1J and AH-1T)
5-196	97-85	Electronic Warfare Equipment (HH-1K)
5-197	98-85	Crashworthy Fuel System (HH-1K)
5-198	99-85	Night Vision (HH-1K)

Page No.	OSIP No.	Title
H-2 Mod - P-1 Line Item 52		
5-199	149-83	Tail Pylon/Drive Train Improvements (SH-2F)
5-201	72-84	DC Fuel Quantity System and 100-Gallon Auxilliary Tanks (SH-2F)
5-203	76-84	ALR-66 (SH-2F)
5-205	50-85	ASN-123 Tactical Navigation Set Improvement (SH-2F)
5-207	127-85	Torpedo Depth Control (SH-2F)
5-209	20-86	Composite Main Rotor Blade (SH-2F)
5-210	21-86	Main Gear Box Improvements (SH-2F)
5-211	22-86	AN/ALE-39 Countermeasures Dispensing Systems (SH-2F)
H-3 Mod - P-1 Line Item 53		
5-213	46-83	Service Life Extension (SH-3H/SH-3G/SH-3D)
5-215	136-83	Cockpit/Avionics Update (VH-3D)
5-216	23-84	Crash Attenuating Seats (SH-3H, SH-3D, SH-3G, HH-3A, UH-3A, VH-3A)
5-217	77-84	Main Gear Box Improvements (SH-3H, SH-3D, VH-3A, HH-3A, SH-3G)
5-219	54-85	Helicopter Emergency Egress Lighting System (HEELS) (SH-3H, SH-3D, UH-3A, SH-3G, HH-3A, VH-3A)
5-220	55-85	VHF Comm/NAV Equipment (SH-3H, SH-3D, UH-3A, SH-3G, HH-3A, VH-3A)
5-221	56-85	Infrared Suppression (IRS) (HH-3A)
5-222	57-85	Night Vision Goggles (HH-3A)
5-223	16-86	AN/ASN-123 Tactical Navigation Set Modifications (SH-3H)
5-224	17-86	EW Suite for HH-3A Helicopters (HH-3A)
5-226	19-86	MK-46/Advance Light Weight Torpedo (ALWT) Presetter (SH-3H)
P-3 Mod - P-1 Line Item 55		
5-227	57-72	Infrared Detecting System (IRDS) (P-3A/B/C)
5-230	84-79	AN/AQA-7 Improvements (P-3B/C)
5-232	104-79	HARPOON (P-3/B/C)
5-234	29-82	Special Project Aircraft (P-3B)
5-236	31-82	MAD System Integration (P-3C)
5-237	71-82	PARKHILL (KY-75) (P-3A/B/C)
5-238	48-83	ALR-66 ESM System (P-3B/C)
5-240	80-84	Advanced Signal Processor Modernization (P-3C)
5-242	82-84	HF Simultaneous Operations (SIMOPS) (P-3C)
5-244	84-84	CP-3A (P-3A)
5-246	53-85	Omnibus R&M Improvements (P-3A/B, P-3C)

Page No.	OSIP No.	Title
S-3 Mod - P-1 Line Item 56		
5-248	102-79	FLIR Reliability Improvement (S-3A)
5-250	106-82	Auxiliary Power Unit Increased Power (S-3A)
5-252	54-83	Display Generator Unit (DGU) Mod (S-3A)
5-254	126-83	AN/ASA-82 Tactical Display System (S-3A)
5-256	89-84	Non-Ice/Low Limit Control Valve (S-3A)
5-257	95-84	AN/APS-116 (S-3A)
5-258	2-85	Weapon System Improvement Program (Redesignated S-3B) (S-3A)
5-260	77-85	ICS Communications Control Group (S-3A)
5-261	78-85	Standard Central Air Data Computer (SCADC) (S-3A)
5-262	79-85	Control Servo Upgrade (S-3A)
5-263	81-85	Turbine Air Bearing (S-3A)
5-264	82-85	Right Hand Aft Avionics Rack (S-3A)
5-265	29-86	ASN-130 Inertial Navigation System (S-3A)
US-3 Mod - P-1 Line Item 57		
5-266	132-84	Flight Control System Mod (US-3A)
5-267	30-86	Standard Central Air Data Computer (SCADC) (US-3A)
5-268	31-86	Anti-Collision Strobe Light (US-3A)
E-2 Mod - P-1 Line Item 58		
5-269	49-82	Passive Detection System Improvements (PDS) (E-2C)
5-271	64-83	TRAC-A (Weapon Improvement) (E-2C)
5-273	27-84	ARC-182 Combination Radio (E-2C)
5-274	148-84	Vertical Control Surface (E-2C)
5-275	18-86	Computer Recorder Reproducer (E-2C)
5-276	26-86	High Speed Processor (HSP) (E-2C)
5-278	27-86	Electronic Counter - Counter Measures (ECCM) (E-2C)
Trainer Aircraft - P-1 Line Item 59		
5-2[illegible]	22-85	TC-4C Mod Update
5-282	103-85	AN/ARC-159(V)5 UHF Transceiver (T-2B/C)
5-283	104-85	AN/ARN-118 TACAN (T-2B/C)
5-284	28-86	Avionics Update Program (CT-39E/G)



Page No.	OSIP No.	Title
Cargo and Transport Aircraft - P-1 Line Item 66		
5-286	75-81	FAA Configuration Update (Commercial Service Bulletins) (C-9B)
5-288	71-85	Ground Proximity Warning System (UC-12B)
5-289	75-85	VLF/Omega System Improvement (UC-12B)
EC-130 Mod - P-1 Line Item 71		
5-290	64-81	Mission Avionics (EC-130G/Q)
5-292	77-81	EMP Layer I (EC-130G/Q)
5-294	32-82	EMP Hardening (Layer II) (EC-130G/Q)
5-296	39-82	PSK Modem (EC-130G/Q)
5-297	83-83	Solid State Teletypewriter (SST) (EC-130G/Q)
5-298	29-85	Survivable Time Standard (STS) (EC-130G/Q)
5-300	30-85	Multiple Satellite Access (EC-130G/Q)
5-301	105-85	Replacement HF Radio (ARC-190) (EC-130G/Q)
5-302	106-85	AFSATCOM Single Channel Transponder (SCT) Update (EC-130G/Q)
5-303	5-86	AFSATCOM/MILSTAR Terminal Update (EC-130G/Q)
C/KC-130 Mod - P-1 Line Item 72		
5-304	78-83	Avionics Systems Improvement Program (ASIP) (C-130F, KC-130F, KC-130R)
5-305	117-84	Avionics Systems Improvement Program (ASIP) Phase Two (C-130F, KC-130F, KC-130R)
5-306	19-85	Cargo Handling System (KC-130F/C-130F)
5-308	20-85	Helo Air-to-Air Refueling (KC-130F, KC-130R)
5-309	70-85	Avionics System Improvement Program (ASIP) Phase III (C-130F, KC-130F, KC-130R)
FEWSG - P-1 Line Item 73		
5-310	119-83	AN/ALQ-167 and AN/AST-4 Pods (A-4, A-6, A-7)
5-312	33-84	Simulator Set, Countermeasures, AN/ALQ-170(V)1 (Various)
5-314	14-85	Simulator Set, Countermeasures, AN/ALQ-170(V)2 (Various)
5-316	107-85	Power Update (ERA-3B)
5-317	108-85	NKC-135A APU (NKC-135A)

Page No.	OSIP No.	Title
Various - P-1 Line Item 75		
5-318	96-83	Sea Water Actuated Release System (SEAWARS) (A-4, A-6, A-7, AV-8, F-4, RF-8, F-14, F-18, S-3, T-2)
5-319	125-84	AN/ULQ-16 Pulse Analyzer Set (MITSI) (ASW Aircraft)
5-320	109-85	Replacement of RSSK-7 with SKU-2/A Survival Kits (F-14A, A-6, KA-6D, EA-6A, EA-6B)
5-322	110-85	Provide Backstop to Preclude Over-Cocking of the Emergency Oxygen System Toggle on Seat Survival Kit (All Aircraft Utilizing RSSK-1, RSSK-8, SKU-2, SKU-3 Survival Containers)
5-323	111-85	Installation of Liquid Oxygen (LOX) Converter Overpressure Safety Disc (All LOX equipped aircraft)
5-325	124-85	30MM Gun Pod (A-4, F-4)
5-326	35-86	Navstar Global Positioning System (GPS) (RH-53/MH-53, E-2C, P-3, F/A-18, AV-8, EP-3, S-3, EA-6, KA-6D, F-14, SH-60, C-2, CH-53E, OV-10D, AH-1J, ECX, CH-46/CH-53, UH-1, AH-1T, SH-3, KC-130)
Power Plant Changes - P-1 Line Item 76		
5-327		Miscellaneous Power Plant Changes
Flight Safety Changes - P-1 Line Item 77		
5-328		Miscellaneous Emergent Safety Changes
Common ECM - P-1 Line Item 78		
5-330	109-79	AN/ALR-45F (A-4M, OA-4M, F-4S, RF-4B, A-7E, KA-6D, AV-8C)
5-332	110-79	AN/ALQ-126B (A-4M, A-6E, A-7E, F-4S, RF-4B, F/A-18, F-14, EA-6B, AV-8B/C)
5-334	113-85	AN/APR-43 (A-4M, RF-4, A-7E)
5-335	114-85	AN/ALR-67 Radar Receiving Set, Countermeasures (F/A-18, A-6E, F-14)
5-337	115-85	AN/ALQ-162 Countermeasures Set (A-4M, RF-4B, A-7E, AV-8C)
5-338	36-86	AN/APR-39A(V)1 (AH-1J/T, UH-1N, CH-53A/D, RH-53D, CH-46E, MH-53E, OV-10A/D, HH-3A)
Common Avionics Changes - P-1 Line Item 79		
5-340	127-82	AN/APN-154(V) Radar Beacon R&M Improvement (A-6E, KA-6D, EA-6A/B, A-7E, F-14A, A-4E/F/N, F-4S, AH-1J, AH-1T, CH/UH/HH-46A/D/E, CH/RH-53A/D/E)
5-342	101-83	Reliability and Maintainability Improvement to the Receiver and Transmitter of the Radar Altimeter Set, AN/APN-171 (E-2C, SH-2F, SH-3D/G/H UH-1N, UH-46D, HH-46A, CH-46D, CH-53A/D, RH-53D, CH-46E, CH-53E, AH-1J/T, OV-10A/D, UH-3A, VH-3A, VH-3D, HH-1K, UH-1E, HH-3A, LC-130R)
5-344	144-83	AN/APN-182(V) Nav. Set, Reliability Impr. (HH-3A, VH-3A, SH-3G, UH-3A, SH-3D, SH-3H, SH-2F, HH-46A, VH-3D)
5-345	140-83	AN/APX-76 Solid State Trans., Reliability and Maint. (F-4B/S, F-14, S-3A, P-3C, EP-3E, KC-130F/R, E-2B/C)
5-346	34-84	Digital Air Data Converter (E-2C, EA-6A, EA-6B, KA-6D, A-6E, C-2A, NEA-6B, F-4S, RF-4B, TC-4C)
5-347	129-84	AN/APX-76 for VF Aircraft (F-4, F-14)
5-349	126-85	AN/APX-76 and RT-988/A IFF Interrogator Anti-Jam Mod. (F-14A, F-4N, F-4S, S-3A, P-3C, KC-130F, KC-130R, EP-3E, SH-60B, E-2C
5-350		Programs of $900K or Less in Budget Year

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-3 Service Life Improvement (Program) (SLIP) Modification (OSIP 130-83)

Models of Aircraft Affected: EA-3B, TA-3B, KA-3, ERA-3B, NRA-3B, NA-3B, RA-3B, VA-3B, A-3B

Description/Justification:

The initial fatigue life limit of the A-3 is currently being approached by many A-3 TMS aircraft. In order to extend the operational service life of the A-3 to 1990, a full scale fatigue test of the airframe structure has been initiated. The test program has identified several structural areas of concern that must be reworked/reinforced to assure continued safe operation of the A-3 weapon system. The structural areas requiring modification are: wing rear spar; wing center section; fuselage station 409; empennage and catapult structure. This modification is planned to be incorporated in three phases:

Phase I: Incorporate the structural reinforcements that have been tested during the fatigue test program.
Phase II: Develop and incorporate structural modifications identified because of fatigue test article failures.
Phase III: Develop and incorporate structural modifications to improved airframe systems reliability identified through service history.

Development Status: The structural modifications encompass the latest state-of-the-art structural fatigue strength enhancement techniques and will require testing to assure attainment of desired results. The wing rear spar reinforcement and fuselage station 409 frame has been designed and prototyped on the fatigue test article. Approval for full production (AFP) is not required. Current plans include kit design, testing, manufacturing, and installation to be accomplished concurrent with Standard Depot Level Maintenance (SDLM) or by drive-in modification by a contractor. Naval Air Rework Facility (NAVAIREWORKFAC) Alameda CFA engineering support is required to update configuration control documents and to provide contractor engineering liaison.

OSIP 130-83

Project Financial Pla

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$700	1*	$2,433	10	$1,079	17	$1,797	15	$1,545
O&MN Install.					(1)*	$185	(10)	$1,850	(17)	$3,145
O&MN Other						$6		$53		$90
APN-6 Spares								$157		$133

	FY 1988		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			43	$ 7,554
O&MN Install.	(15)	$2,775		7,955
O&MN Other		$80		229
APN-6 Spaes				290
GRAND TOTAL				$16,208

*Prototype

Note: $23 APN-6 in FY 1987 to be reprogrammed.

Installation Data: Design development and installation of the prototype kit is planned to be accomplished in twenty four months. Twenty two production installations are planned to be accomplished during Standard Depot Level Maintenance (SDLM) and twenty three installations by drive-in modifications.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Communications and Intercommunication System Update (OSIP 86-85)

Models of Aircraft Affected: EA-3B, TA-3B, ERA-3B, KA-3B, NRA-3B, VA-3B, RA-3B, NA-3B, A-3B

Description/Justification:

In recent years re-analysis of mission requirements, non-availabilty of a replacement weapon system for the A-3 aircraft and sufficient remaining airframe life has led to the decision to extend the planned service life of the A-3 aircraft. As the A-3 aircraft were originally scheduled for retirement in Fiscal Year 1985, many of the Avionics Systems need replacement or upgrading. Use of these older systems in A-3 aircraft degrade the support posture and operational readiness. Out-of-production end assemblies and components, unique training requirements, maintenance capability, and ground support equipment all contribute to poor system reliability and maintainability, reduced mission capability and operational effectiveness of the aircraft. Recently, Tempest testing of an A-3 aircraft indicated a serious problem exists in the COM/NAV installation in the area of secure communications. Replacement of these systems would allow removal of operational restrictions (workaround) placed on these aircraft.

Portions of the existing communications and ICS systems presently installed in most A-3 aircraft exhibit low reliability and require excessive maintenance manhours to keep operable. The system is aging and uses vacuum tubes which reduce the mean time between failure (MTBF) of the system and adds to an excessive heating problem in some models.

Replacing the intercommunications systems throughout the aircraft and installing a new communications suite comprising components such as the AN/ 190 HF radio, ARC-175/ARN-126 VHF suite and replacement of the ARC-51 UHF communication radios in the A-3 aircraft still using that system with the ARC-159 will provide improved reliability through the projected life of the aircraft.

Development Status: This modification will use equipment that is currently in the Navy inventory. The proposed ICS System is basically an Air Force developed system and qualification testing was completed in the fourth quarter FY 1983. Nonrecurring engineering is required to adapt the equipment to the A-3 aircraft. Equipment approval for full production (AFP) has been granted, but Tempest testing is required to verify the installation. Current plans include kit design, testing, manufacturing, and installation to be accomplished by a contractor.

OSIP 86-85

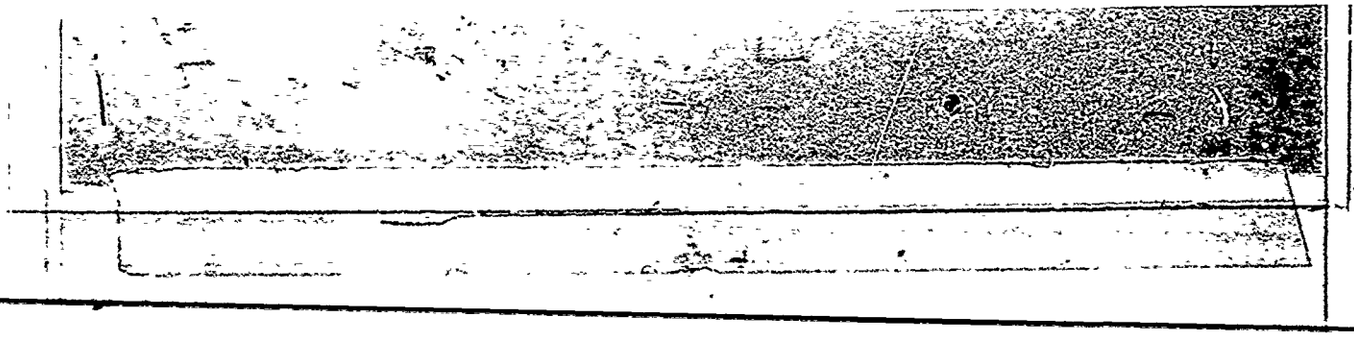
Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$3,685		$2,777			46*	$6,462
O&MN Install.			(28)	$1,236	(18)	$792		2,028
O&MN Training		$78		$60		$50		188
APN-6 Spares		$301						301
GRAND TOTAL								$8,979

*Total quantity of aircraft to receive mods.

Installation Data: Due to workload priorities at the Naval Air Rework Facility (NAVAIREWORKFAC), A-3 airframe change kits are procured from a commercial contractor. The contractor will provide drive-in/field team modifications to expedite the modification program and reduce the impact on operational availability of these limited quantity, special mission aircraft.

NOTE: Because of differences between models of the same aircraft, not all portions of the modification are applicable to every bureau number.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-3 Air Turbine Motor (ATM) Improvements (OSIP 87-85)

Models of Aircraft Affected: EA-3B, TA-3B, ERA-3B, NRA-3B, NA-3B, HA-3B, VA-3B, KA-3B, A-3B

Description/Justification:

A-3 aircraft utilize two air turbine motors driven by engine bleed air to provide electrical and hydraulic utility power. Due to the age of Air Turbine Motor (ATM) equipment and inability to procure major subassemblies, the reliability and supportability of the ATM has degraded to an unacceptable level. Engineering analysis has shown that improvements in the ATM oil pump and speed control governor will significantly increase ATM reliability. Since the ATMs provide total hydraulic and electrical power for the A-3 aircraft, this improvement will significantly improve the operational reliability and safety of the A-3 weapon system.

Development Status: Approval for full production (AFP) is not required because component subsystems will be compatible with the existing ATM and its operational envelope.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	19	$937	30	$1,067			49	$2,004
O&MN Install.*			(38)	$380	(119)	$1,245		1,625
APN-6 Spares				$999				999
GRAND TOTAL								$4,628

Installation Data: *This modification will be incorporated at depot as a turn-around-program. Installation Qty includes 2 per aircraft plus 59 spares.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-162 Countermeasures Set (OSIP 4-83)

Models of Aircraft Affected: A-4M

Description/Justification:

This OSIP provides for the AN/ALQ-162 instal ation provisions. The AN/ALQ-162 GFE in FY 1985 and subsequent is contained in the AN/ALQ-162 OSIP 113-85.

The AN/ALQ-162 provides complementary CW jamming to the operational AN/ALQ-126B pulse jammer installed in tactical aircraft. The AN/ALQ-162 will accept threat handoff data from the AN/APR-43 Radar Warning Receiver and utilize a common transmit/receive antenna integral to the AN/APR-43 antenna assembly. Th AN/ALQ-162 also provides a stand alone capability allowing for defensive electronic countermeasures in event of AN/APR-43 failure. The AN/ALQ-162 design is fully reprogrammable to handle future threat parameter changes. The AN/ALQ-162 provides a significant increase in survivability for Navy tactical aircraft against radar directed air defense weapons.

Development Status: Northrop Defense Systems Divisions is under contract and provided engineering development models in the second quarter of FY 1981 for test and evaluation. TEMP No. 593 supports Navy test and evaluation. The RDT and TECHEVAL are complete. OPEVAL commenced in the first quarter of FY 1984. Approval for limited production (ALP) is expected in the third quarter of FY 1984. RDT&E,N Program Element Number 64224N applies.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$271	4	$4,579	42	$928	42	$956	28	$673		
O&MN Install.					(5)	$93	(42)	$770	(30)	$551	(27)	$495
APN-6 Spares				$413		$87						

OSIP 4-83

Project Financial Plan (Cont'd):

	FY 1989		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			117	$ 7,407
O&MN Install.	(13)	$238		2,147
APN-6 Spares				500
GRAND TOTAL				$10,054

Installation Data: Installation of the airframe change kit will be accomplished during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ARN-118 TACAN (OSIP 6-83)

Models of Aircraft Affected: TA-4F/TA-4J

Description/Justification:

The AN/ARN-118 TACAN set is the airborn unit of the tactical navigation system (TACAN). The set was developed as a low cost, high reliability replacement for the older tube type equipments. It is a direct replacement for the current AN/ARN-52 TACAN and uses the same mounting provisions and aircraft wiring. Specified/demonstrated reliability is 1200 hours vice 150 hours for the AN/ARN-52.

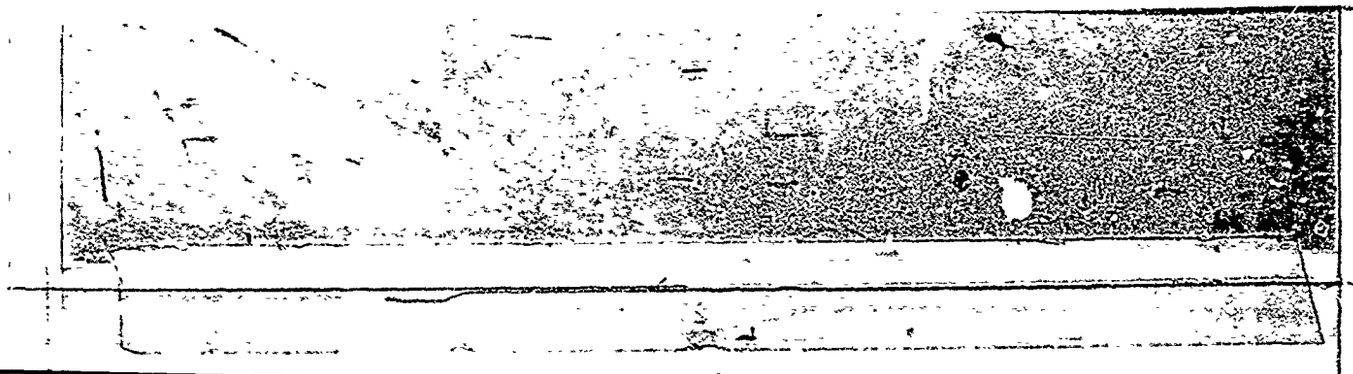
Development Status: The system is already installed in the A-4M aircraft. Approval for full production has been received.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	45	$1,321	84	$2,025	84	$2,147	88	$2,382		
O&MN Install.					(72)	$23	(70)	$23	(119)	$39
APN-6 Spares						-0-				

	FY 1988		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			301	$7,875
O&MN Install.	(40)	$14		99
APN-6 Spares				-0-
GRAND TOTAL				$7,974

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Constant Frequency Generator Improvement Program (OSIP 129-83)

Models of Aircraft Affected: TA-4F/J

Description/Justification:

The Constant Speed Drive (CSD) presently installed in TA-4F/J aircraft is a perennial high maintenance item. The units are not in production and spares are difficult to obtain with long lead times. Many of the CSD housings are wearing out and will become unusable within a few years. The housings are not procurable as a spares item. Therefore the scrap r te will increase, and without a supply of new units a shortage of units in the fleet will develop. The aircraft is not mission capable without a CSD unit.

Development Status: Naval Air Test Center (NATC) Patuxent River is testing a new Constant Frequency Generator which is similar to a unit undergoing qualification testing in a New Zealand Air Force A-4K aircraft. Similar qualification testing is planned for FY-83/84 in a Chief of Naval Air Training TA-4J aircraft. Approval for full production (AFP) is planned by mid FY 1984. The unit installed in the A-4K aircraft has flown 242.3 maintenance free flight hours as of 30 September 1982.

Project Financial Plan:

	FY 1983		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$650	64	$4,894	79	$6,209	76	$6,323	65	$5,724	288	$23,800
O&MN Install. "O" Level				-0-								-0-
O&MN Verification				$3								3
APN-6 Spares				$1,[illegible]		$1,205		$1,214				3,475
GRAND TOTAL												$27,278

Installation Data: Installation will be accomplished at Organizational or Intermediate levels.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Digital Air Data Computer System Improvement (OSIP 1-84)

Models of Aircraft Affected: A-4M

Description/Justification:

There are three different air data devices in the A-4M. The AXC-666 air data computer's primary function is to provide attitude and airspeed information to the HUD display and to weapons system. The mean flight hours between failure (MFHBF) will fluctuate depending upon how actively the A-4 is being used in bombing practices and derbys. A second air data device is the AFCS air data sensor. This device is located in the tail section. It is reported to be unreliable. The AFCS is not flight essential thus it is not necessarily operational for each flight. There has been some mention of removing the system. The third air data device is the AIMS CPU-66 altitude computer, the sole purpose of which is to satisfy the Air Traffic Control automatic altitude reporting requirement. The altitude displayed on the HUD provided by the AXC-666 and the altitude displayed on the pilots AAU-19 provided by the CPU-66 are not synchronous and have been reported as a problem.

Incorporation of the digital air data computer being developed under the AVCS program would be a single air data computer replacing the AXC-666, the CPU-66, and the AFCS air data sensor. Reliability of the single air data device as compared to the three air data devices is expected to be 10 times better. Similar improvements in maintainability can be reasonably anticipated. The new air data system would provide airspeed and altitude outputs to the HUD suitable for primary flight. The DADC provides for MIL-STD-1553 MUX in anticipation of CILOP programs.

Development Status: A prototype AFC kit and digital air data computer was installed in A-4M aircraft BUNO. 158180 with ARBS incorporated in February 1983. TECHEVAL testing completed in November 1983. OPEVAL testing will commence in February 1984 and complete in May 1984. RDT&E Program Element No. 25633A applies. Approval for full production (AFP) is expected in June 1984.



OSIP 1-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	35	$2,289	39	$1,937	30	$1,579	13	$725			117	$6,530
O&MN Install.			(13)	$159	(37)	$453	(37)	$453	(30)	$367		1,432
O&MN Factory Trng.		$20		$40								60
APN-6 Spares		$478		$344		$280						1,102
GRAND TOTAL												$9,124

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AGM-65 MAVERICK Missile System Provisions (OSIP 36-84)

Models of Aircraft Affected: A-4M

Description/Justification:

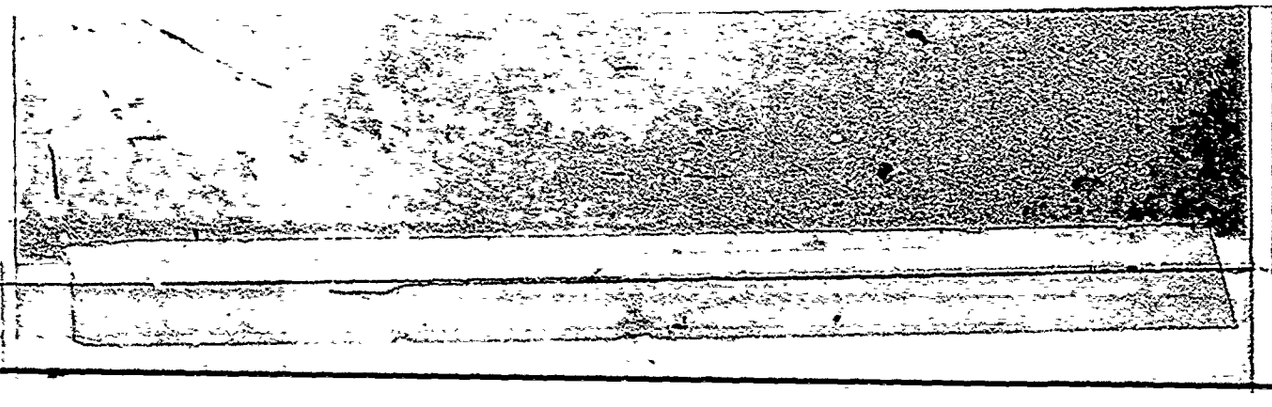
Incorporation of MAVERICK Missile provisions into the A-4M will give the Marines a highly accurate anti-armor/ anti-fortification capability which is consistent with DOD direction. This program will install electro optical and laser missile capability in the A-4M.

Development Status: Two FY-7T/77 production aircraft were prototyped with MAVERICK provisions by the contractor. One prototype aircraft has completed structural testing with MAVERICK missile on Stations 1 and 5.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	53	$5,800	23	$3,300	12	$1,700	29	$2,100			117	$12,900
O&MN Install.			(7)	$72	(36)	$369	(28)	$286	(46)	$471		1,198
APN-6 Spares				$440		$278						668
GRAND TOTAL												$14,766

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) concurrently with Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: TA-4J AN/ARC-159(V)5; UHF Transceiver (OSIP 64-85)

Models of Aircraft Affected: TA-4J

Description/Justification:

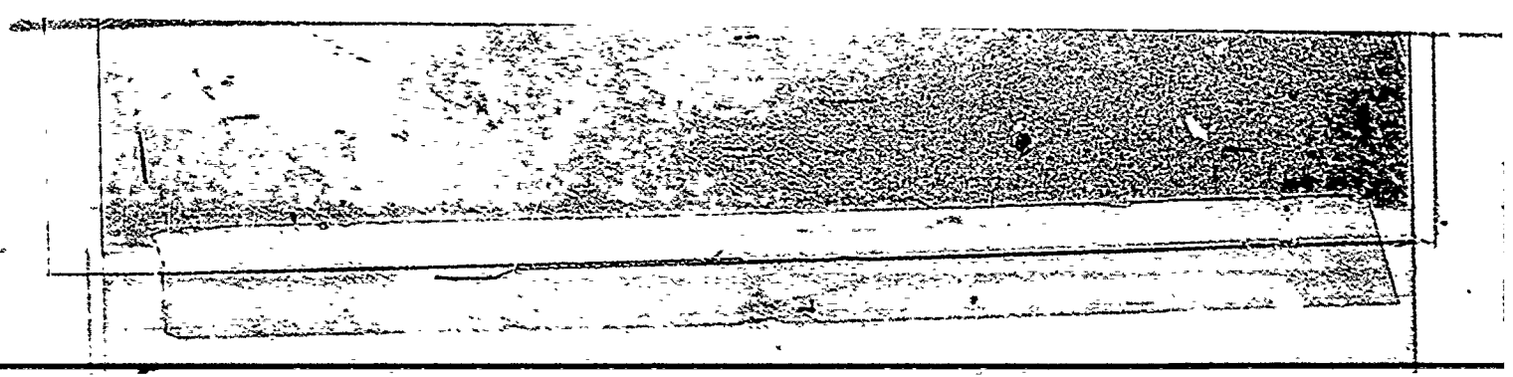
The ARC-159(V)5 transceiver will replace the presently installed AN/ARC-51A UHF equipment which is a major cause of mission aborts, below standard readiness, high maintenance (51 Mean Flight Hours Between Failure (MFHBF) for the ARC-51A compared to 166 MFHBF for the ARC-159(V)5) and high support expenditures. The ARC-51A is a 1960 design with vacuum tubes, while the ARC-159(V)5 is all solid state. Utilization of the ARC-159(V)5 will provide improvement in reliability, thus significantly reducing support costs and saving manpower (4.7 man years saved). In addition, this effort will improve mission effectiveness and greatly reduce safety of flight conditions.

Development Status: The AN/ARC-159(V)5 system has been installed in OA-4M (TACA), TA-4F and Blue Angel aircraft with AFC-621 and AVC-1757 Amend 1 incorporated. TEMPEST testing was completed on TA-4F and OA-4M aircraft. No approval for full production (AFP) is required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	74	$2,270	77	$2,453	74	$2,496	42	$1.500	267	$8,719
O&MN Install. "O" & "I" Levels		-0-								-0-
AFN-6 Spares		$2								2
GRAND TOTAL										$8,721

Installation Date: APC and AVC kits will be installed by "O" and "I" personnel respectively.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APN-194 Radar Altimeter System (OSIP 65-85)

Models of Aircraft Affected: TA-4F/J

Description/Justification:

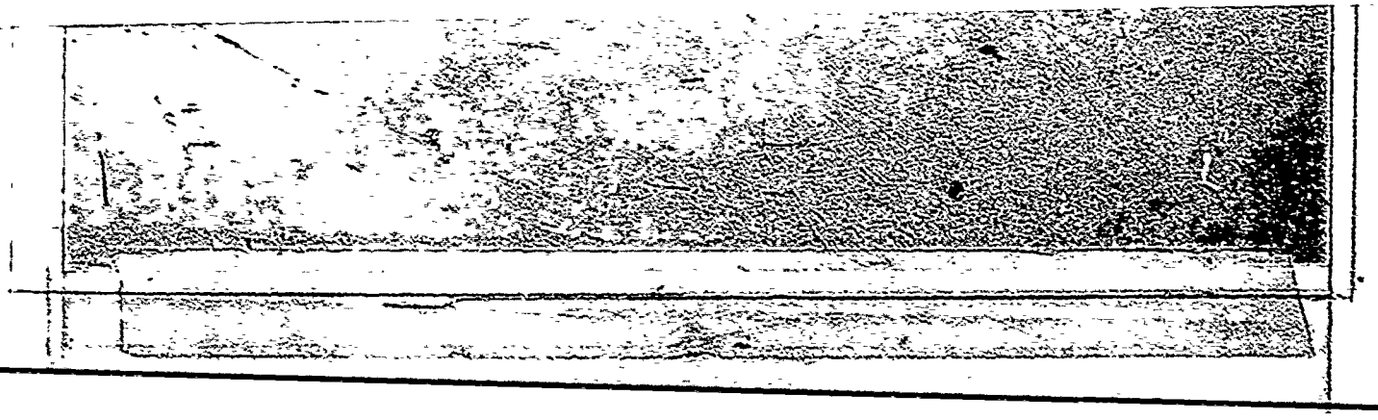
The APN-194 Radar Altimeter System will replace the presently installed AN/APN-141 equipment which is a major cause of high maintenance and below standard readiness (51.2 Mean Flight Hours Between Failure (MFHBF) for APN-141 compared to 349.6 MFHBF for the APN-194). Maintenance support expenditures are also high due to old test equipment failures. Utilization of the AN/APN-194 system will provide improvement in reliability and maintainability, thus significantly reducing support costs and saving manpower (7.1 man years saved).

Development Status: The AN/APN-194 has been installed in A-4F/M and OA-4M aircraft with AFC-555 incorporated. Further development and approval for full production (AFP) are not required. AFC-555 will be amended to include TA-4J aircraft.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	64	$1,549	106	$2,613	91	$2,373	23	$637			284	$7,172
O&MN Install.			(12)	$10	(119)	$97	(81)	$66	(72)	$59		232
O&MN Training				$19								19
APN-6 Spares		$9		$16								25
GRAND TOTAL												$7,448

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) concurrently with Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/AJB-3 Reliability Improvement and Equipment Life Extension (OSIP 66-85)

Models of Aircraft Affected: TA-4F/J, OA-4M

Description/Justification:

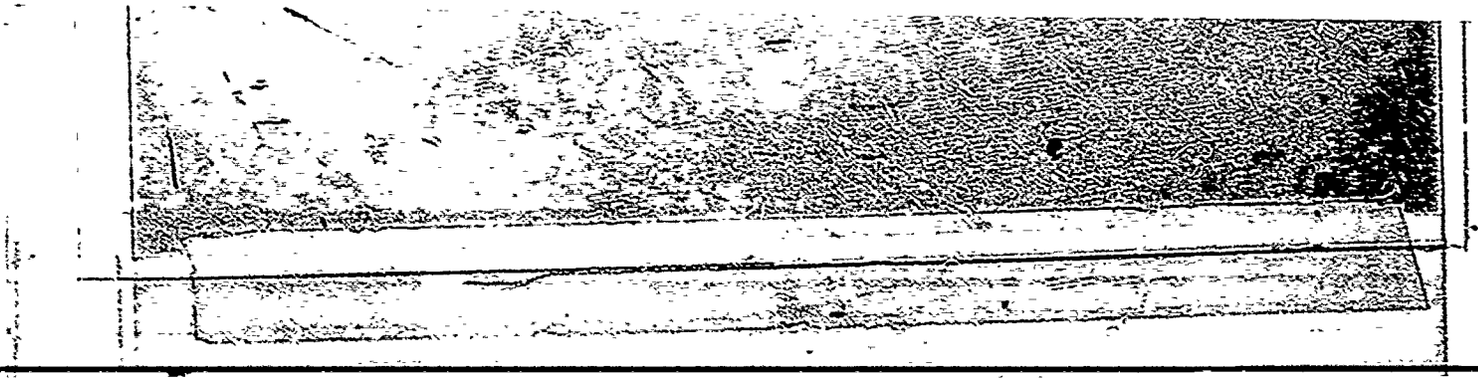
This modification incorporates improvement design changes and refurbishment of the AN/AJB-3 All Atitude Heading Reference System, modification of intermediate maintenance support equipment, and update of publications. The AN/AJB-3 System has been and remains in the top five on the Readiness Improvement Status Evaluation (RISE) Report. Due to age of the system and changes in the state-of-the-art, many piece parts and subassemblies are no longer available for support. No major changes, updates or improvements have been incorporated into the system, support equipment or publications in over ten years. Maintenance has been "only repair as necessary". This modification was done under OSIP 190-79 for A-4M aircraft and has shown an improvement of 550 flight hours between failure.

Development Status: System approved for installation in A-4M aircraft. No approval for full production (AFP) is required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	89	$3,630	78	$2,258	75	$2,299	59	$1,914			301	$10,151
O&MN Install.			(89)	$1,511	(78)	$1,324	(75)	$1,273	(59)	$1,002		5,110
APN-6 Spares		$893		$438		$442		$372				2,145
GRAND TOTAL												$17,406

Installation Data: This modification will be incorporated by a component turnaround program at the contractor's plant.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APR-43 (OSIP 67-85)

Models of Aircraft Affected: A-4M

Description/Justification:

This OSIP buys A-4M peculiar provisions for common equipment bought under the Common ECM line. The AN/APR-43 system is a radar warning receiver and will operate in conjunction with the AN/ALR-45F Radar Warning Receiver. It provides required combat mission essential countermeasures warning and direction finding beyond that provided by the existing AN/ALR-45(V) and AN/ALR-50(V) installations

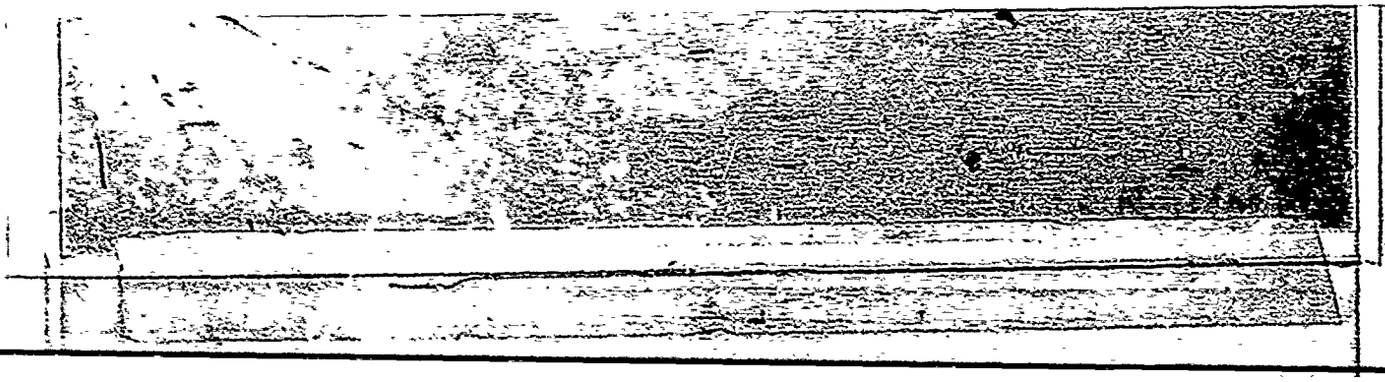
Development Status: TECHEVAL and OPEVAL are completed in the A-7E. Approval for lmited production (ALP) was granted in October 1983. FOT&E is underway. RDT&E,N Program Element Number is 63206N (WO 638-TW).

Project Financial Plan

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	47	$861	42	$548	28	$225			117	$1,634
O&MN Install.			(23)	$544	(45)	$1,343	(49)	$1,462		3,349
O&MN Training				$20						20
APN-6 Spares		$79		$76		$22				177
GRAND TOTAL										$5,180

NOTE: See OSIP 113-85 for GFE procurements.

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and by Field Team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Target Recognition and Attack Multisensor (TRAM) (OSIP 1-76)

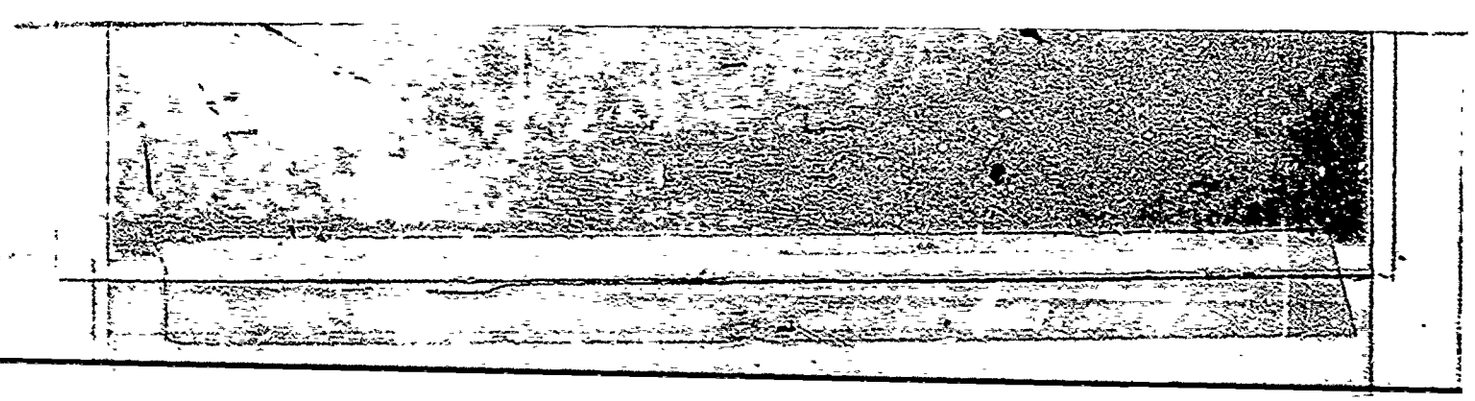
Models of Aircraft Affected: A-6E

Description/Justification:

This program will provide the A-6E with improved capability for location and surveillance of opposing naval forces, and the countering of operations during periods of darkness. In cold war, reconnaissance requires maximum night identification and surveillance capability. In limited war, accurate 24-hour strike capability against enemy sea and sea support targets will be the highest priority mission of the A-6E. This system, developed under SOR W11-93, includes a passive imaging infrared sensor for target classification and identification of a laser target designator/ranger boresighted with the infrared sensor for delivery of laser guided weapons, and a laser search set to locate targets illuminated by external laser designators. All equipment is collocated in a 20-inch diameter turret which is space stabilized and cued to suspected targets by the search and acquisition radar. The TRAM components do not replace or degrade existing A-6E equipments and weigh less than 500 pounds.

In order to achieve an effective force level of TRAM capable aircraft and ensure commonality of configuration and support, the TRAM system is being installed in both A-6E production aircraft and A-6E aircraft being modified to production configuration under the A-6 ASN-92 (CAINS) and CNI Combined (Configuration Update) OSIP 9-77. A6E aircraft delivered since CY 1976 have TRAM wiring and cockpit provisions for CAINS and Communication, Navigation, Identification (CNI) equipment.

Development Status: The development program was funded by RDT&E. Approval for service use was granted in March 1980 and full production release was issued in April 1980.



OSIP 1-75

Project Financial Plan:

	FY 1976		FY 1979		FY 1977		FY 1978		FY 1979		FY 1980	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	3	$9,671		$4,286		$11,229	18	$40,542	35	$74,804		
APN-5 Install.								513				
Total APN-5		$9,671		$4,286		$11,229		$41,055		$74,804		
APN-6 Spares								$14,353		$25,387		$14,538

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.		$388	15	$28,312	20	$38,715	14	$28,482	30	$64,706	25	$57,088
APN-5 Install.												
Total APN-5		$388		$28,312		$38,715		$28,482		$64,706		$57,088
O&MN Install.				$268		$287		$326		$363		$383
APN-6 Spares		$4,500								-0-		

	FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	26	$58,394			186	$416,617
APN-5 Install.						513
Total APN-5		$58,394				$417,130
O&MN Install.		$402		$424		2,453
APN-6 Spares						58,778
GRAND TOTAL						$478,361

* Quantity represents DRS's.

Installation Data: Installation of TRAM is being accomplished by the contractor under an integrated A-6E configuration update program which includes the retrofit of TRAM/CAINS/CNI equipments in 163 of the original versions of the A-6E. In addition, TRAM will be backfitted into 101 A-6E aircraft already delivered with CAINS/CNI equipments. GFE leadtime for the AAS-33 DRS is 30 months for FY 1982.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-6 ASN-92 (CAINS) and CNI Combined (Configuration Update) (OSIP 9-77)

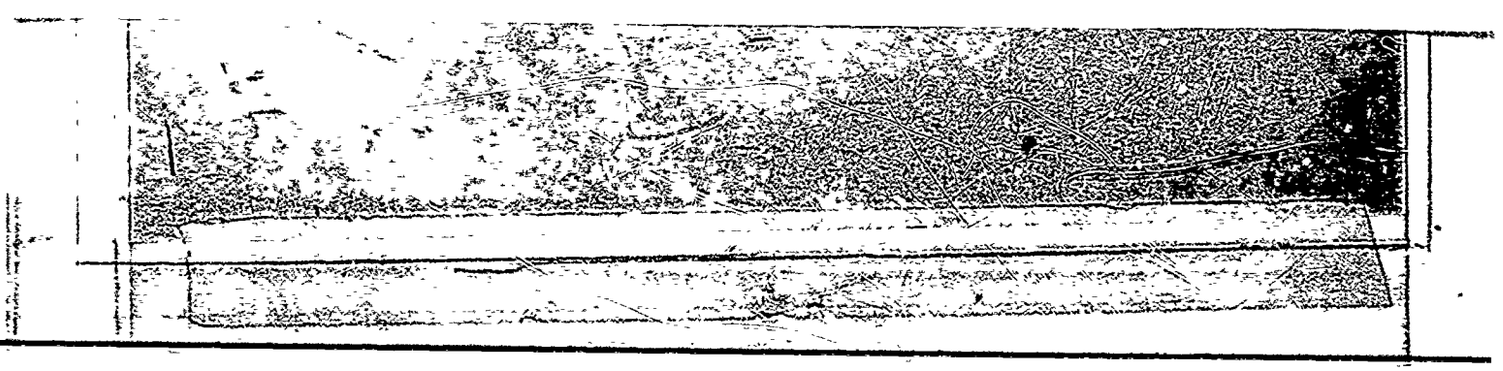
Models of Aircraft Affected: A-6E

Description/Justification:

The AN/ASN-92(V) Inertial Measurement Unit (IMU), Mount, and Power Supply Unit (PSU) will replace the present AN/ASN-31 Inertial Navigation System which has been phased out of production. The AN/ASN-92 is being installed in production and retrofit A-6E aircraft. The ASN-92 has demonstrated its capability in meeting performance parameters including higher reliability than presently attainable with the ASN-31 system. The ASN-92 IMU, Mount, and PSU are common equipment on the F-14A, S-3A, E-2C and the RF-4B. This modification will significantly reduce the number of spares and unique test equipment. The weight and volume of the ASN-92 equipment is 55.8 pounds and 1.0 cubic feet, respectively. The A/C Converter modifies the existing converter to adapt the ASN-92 signals to the A-6E avionics with no increase in weight or space. BNCB/BIT is a modification to the cockpit controls of the aircraft radar to provide improved radar operator efficiency with no increase in space or weight. The MU-603/ASQ-133A Auxiliary Core Memory Unit (ACMU) provides an additional 8,000 words of core storage to meet the CAINS software requirement. The ACMU is interchangeable functionally and electrically with the existing computer memory. The memory weighs 39 pounds and is .709 cubic feet.

The reliability and maintainabilty of the A-6E is being enhanced by the replacement of the present ASQ-57 CNI package (a 1950 design) with modern, flexible, more reliable and individually mounted government furnished CNI equipment (i.e., two AN/ARC-159 UHF radios, AN/ARN-84 TACAN set, AN/APX-72 transponder). The ASQ-57 package provides for only one UHF radio resulting in loss of communication upon failure. This replacement will provide greater reliability/maintainability and at the same time will significantly decrease the maintenance manhours and associated support. There will be a 57 percent reduction in weight.

Development Status: All GFE hardware has been developed and is being installed in A-6E production aircraft.



OSIP 9-77

Project Financial Plan:

	FY 1977		FY 1978		FY 1979		FY 1980		FY 1981	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1*	$1,302		$11,001		$38,310		$37,603		$50,546
O&MN Install.								$324		$22,267
APN-6 Spares										$10

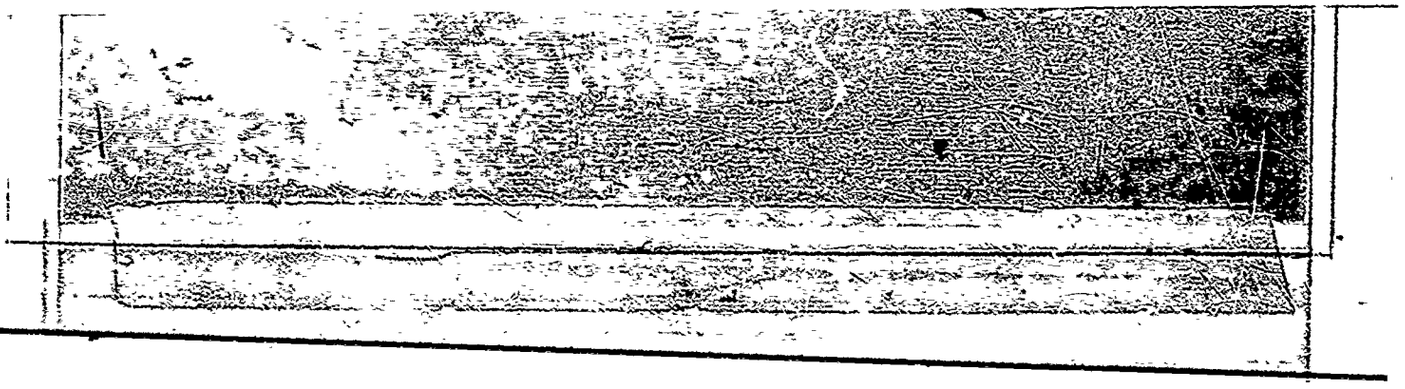
	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$25,751		$39,372		$18,289		$19,373		$37,660
O&MN Install.		$45,324		$41,769		$29,129		$27,603		$17,494
APN-6 Spares		$15						-0-		

	FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5						$279,207
O&MN Install		$17,494		$30,844		235,248
APN-6 Spares						25
GRAND TOTAL						$514,480

* Prototype

Standard Depot Level Maintenance (SDLM) is being conducted by the contractor on all A-6E aircraft receiving CAINS/TRAM/CNI equipments in the retrofit program. This OSIP also includes funding for those A-6E's (27) with CAINS/TRAM/CNI provisions already installed which are being rewinged by the contractor. See the A-6E Rewing (OSIP 10-79) for detail.

Installation Data: Installation is being accomplished by the contractor under an integrated A-6E configuration update program which includes the concurrent retrofit of CAINS, CNI and TRAM equipments in 163 of the original versions of the A-6E. Fifty-one of these aircraft are being rewinged coincidental with retrofit. All retrofit aircraft also receive SDLM.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/IP-722F Vertical Display Indicator (VDI) (OSIP 1-78)

Models of Aircraft Affected: A-6E/KA-6D

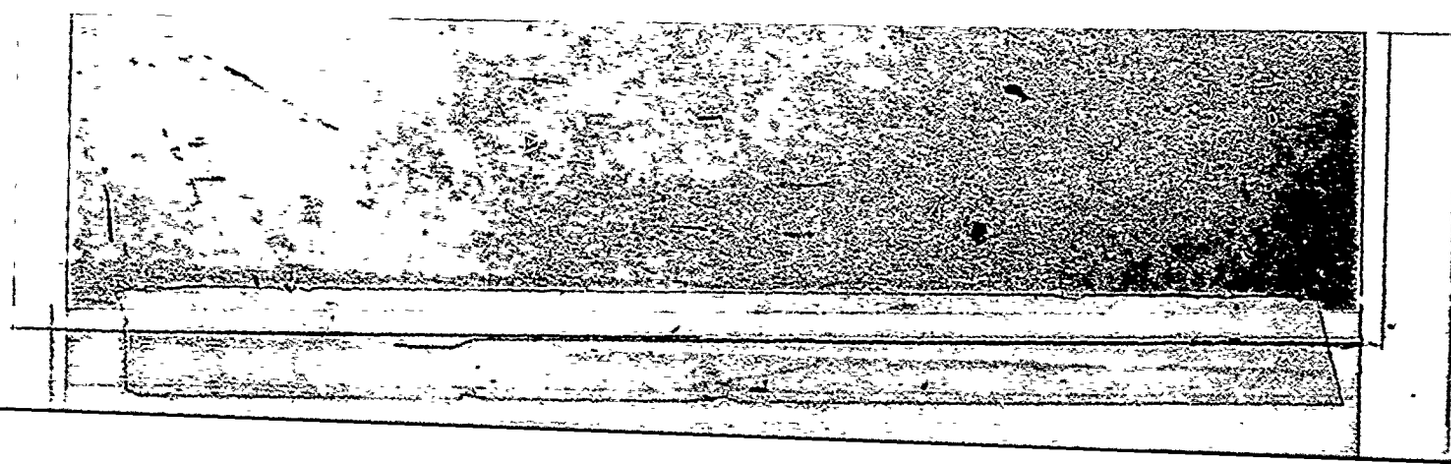
Description/Justification:

The Vertical Display Indicator (VDI) is a dynamic contact analog TV display, composed of easily identified ground and sky textures integrated with flight path presentations and other visual flight cues. The cues assist the pilot in flying the aircraft during takeoff, navigation, attack and landing. Through the use of this display the pilot is able to fly his aircraft under all conditions as though he were in actual contact flight.

The present VDI, the IP-722/AVA-1, was designed in the mid 1950's using the latest technology of that era. The circuit technology, reliability and maintainability are archaic by present day standards. The discrete components (resistors, capacitors, transistors, etc.) that make up this display are no longer available. Substitute components are not directly replaceable requiring extensive redesign when they must be substituted. Nonavailability of parts is escalating the cost of the unit while decreasing the already poor reliability and maintainability.

The proposed system is a direct replacement for all A-6 aircraft. Improved technology will increase the reliability from 50 hours to 400 hours and decrease the mean-time-to-repair from 5 hours to 1 hour. It will also provide increased brightness, accuracy and stability. The redesigned unit includes the capability to put FLIR video on the VDI and provides additional symbology for automatic carrier landing system (ACLS). Airframe wiring provisions for FLIR video will be installed during the TRAM retrofit program. Weight of the new unit will be 45 pounds vice 56 pounds of the current indicator. This equipment can be installed at organizational level.

Development Status: This equipment was developed using FY-75/76 AERMIP funding. Four prototype indicators were built for test and evaluation. Development testing was completed in May 1978. Approval for service use was issued in February 1979.



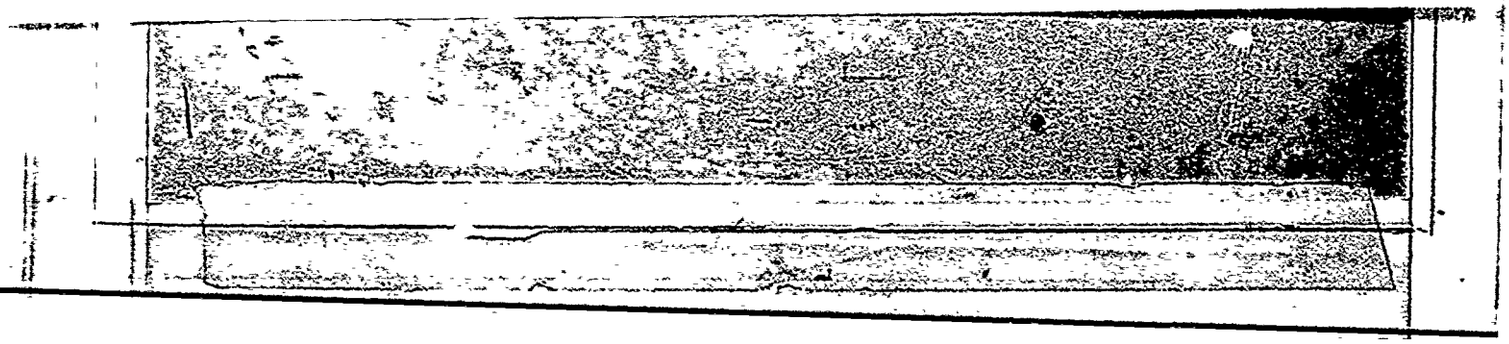
OSIP 1-78

Project Financial Plan:

	FY 1978		FY 1981		FY 1982		FY 1983		FY 1984	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	85	$4,200	21	$2,048	12	$1,170	91	$6,731	106	$10,277
O&MN Install. ("O" Level)										
APN-6 Spares		$267								$11

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5			84	$8,900	399	$33,326
O&MN Install. ("O" Level)		-0-				-0-
APN-6 Spares		-0-				278
GRAND TOTAL						$33,604

Installation Data: This indicator is a direct replacement and will be installed at the organizational level. The wiring provisions for FLIR video will be included in the TRAM retrofit program.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-6E Rewing (SLEP) (OSIP 10-79)

Models of Aircraft Affected: A-6E

Description/Justification:

The A-6 all-weather attack aircraft was introduced in the Navy in 1963 and is still being produced. In 1972, the Navy initiated a Conversion-in-Lieu-of-Procurement (CILOP) program (OSIP 5-72) to convert the earlier models (A-6A) to the new production configuration (A-6E). The CILOP program completed in FY 1979 with the last of the A-6A's being converted. The aircraft has a 3,000-hour wing life which, depending on actual wing loading and utilization, equates to a service life of between 9 and 13 years. Heavy wing loadings and high 'g' maneuvers in combat have accelerated service life completions due to fatigue. Onboard accelerometers have been installed on all aircraft to verify the service life available. As a result, and in order to avoid degradation of Fleet readiness and maintain an adequate inventory of all-weather attack resources, it is necessary that those aircraft approaching their fatigue life limit be rewinged. This rewing effort will approximately double the original service life expectation of the aircraft. This program was originally funded in OSIP 5-72, A-6E Modification (CILOP) and has been continued under the A-6E configuration update, OSIP 9-77, and this OSIP since the CILOP program completed in FY 1979.

Development Status: Development complete.

Project Financial Plan:

	FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.		$3,297	11	$11,140	15	$18,073	22	$28,119	7	$9,274	24	$25,695
APN-5 Install.		*										
Total APN-5		$3,297		$11,140		$18,073		$28,119		$9,274		$25,695

* APN-5 installation of 12 wings and O&MN installation of 49 wings is included in OSIP 9-77.

OSIP 10-79

Project Financial Plan (Cont'd):

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	6	$9,690	20	$33,608	24	$40,697	24	$43,129	24	$45,653	24	$50,324
APN-5 Install.												
Total APN-5		$9,690		$33,608		$40,697		$43,129		$45,653		$50,324
O&MN Install.	(4)	$3,716	(17)	$15,791	(17)	$15,791	(24)	$22,295	(24)	$22,295	(24)	$22,295
APN-6 Spares		-0-										

	FY 1991		FY 1992		FY 1993		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	8	$20,131					209	$338,830
APN-5 Install.								-0-
Total APN-5		$20,131						$338,830
O&MN Install.	(23)	$21,366	(24)	$22,295	(3)	$4,181		150,025
APN-6 Spares								-0-
GRAND TOTAL								$488,855

NOTE: FY 1979 includes installation cost of rewing kits previously procured in OSIP 5-72. The initial 64 kit installations are being performed in conjunction with A-6E CAINS/TRAM/CNI modifications (OSIP 9-77) under an integrated A-6E configuration update effort.

All aircraft being rewinged by the contractor will also receive concurrent Standard Depot Level Maintenance (SDLM). Funding for initial SDLM effort is displayed in OSIP 9-77 (CAINS) as part of the integrated configuration update.

Installation Data: The rewing of A-6E aircraft is being conducted at the contractor's plant. The first 76 wing installations are being performed in conjunction with A6A to A6E Modification, the retrofit of TRAM/CAINS/CNI systems and the backfit of TRAM equipments in an integrated A-6E configuration update program. Leadtime for the CFE kits is 24 months.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-6E Weapon Control System Improvement (OSIP 102-80)

Models of Aircraft Affected: A-6E

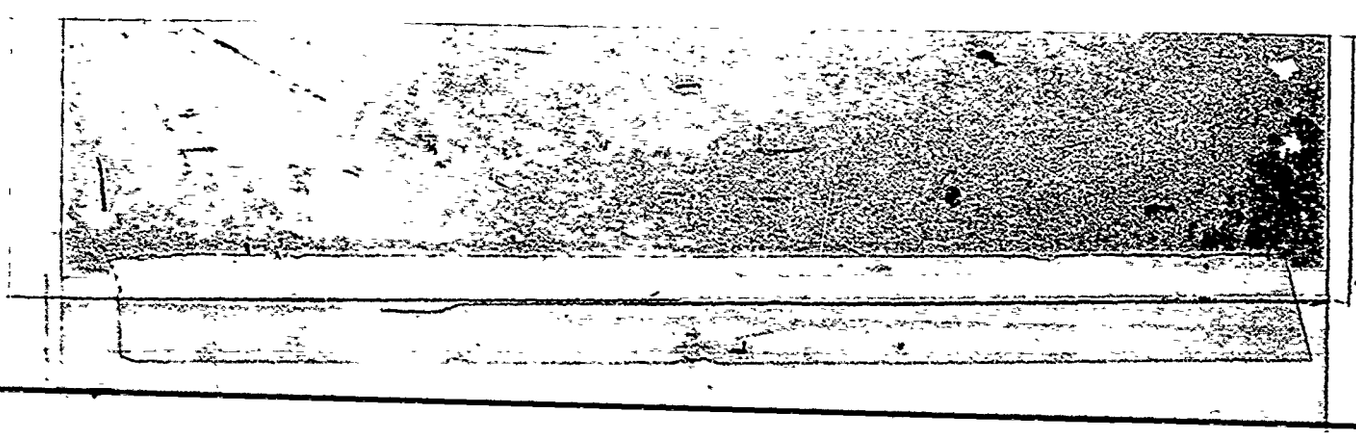
Description/Justification:

The A-6 all-weather attack aircraft was introduced in the Navy in 1963. Numerous modifications have been incorporated in the aircraft since its introduction primarily to improve its reliability, safety, and operational capability. The latest model of the aircraft, the A-6E, is being purchased as a new production article as well as a Conversion in Lieu of Procurement (CILOP) program which converted the older A-6A to the A-6E. The CILOP program completed in FY 1979.

Throughout the years, as new ordnance/weapons have been introduced into the inventory, the A-6 has been adapted to ensure compatibility so that the aircraft will remain current in its weapon delivery capability. In most instances, the adaptations to the aircraft have consisted of the addition of avionics packages/wiring/software dedicated to the specific weapons. As a result, there is a proliferation of weapon control system configurations in Fleet aircraft which are difficult to maintain. Further adaptations to the weapon control system, utilizing the approach of adding major processing packages/ wiring dedicated to a specific weapon can no longer be tolerated.

The 4 Pi computer in the A-6E aircraft series is limited in memory capacity. Modifying the computer with a double density memory capability will provide the additional capacity required for current weapons, as well as those postulated in the future, thus eliminating the need for dedicated processing packages for each weapon. The armament wiring complexity of the aircraft can also be greatly simplified, leading to a universal wiring concept of implementation. The overall result will lead to higher operational reliability in the fleet and a reduction in ordnance maintenance manhours, as well as provide all A-6 aircraft with full capability to carry and deliver current weapons such as SIDEWINDER, SHRIKE, etc. Ample growth is inherently available for such follow-on weapons as LASER/IR MAVERICK, HARPOON, HARM and the follow-on stand off weapon.

With this as the basis, the program consists of the installation of improved armament wiring in all aircraft which will be accomplished during the configuration update of the to A-6E TRAM (described in OSIP 1-76) to minimize installation costs. Production A-6E TRAM aircraft received the new wiring installation commencing with the FY 1979 procurement. A-6E TRAM configured aircraft (101) delivered prior to the initiation of this program will have the wiring provisions installed during rewing (SLEP) in FY 1983 through FY 1986. In addition, this program will install modified computers (double density memory) in all aircraft.



OSIP 102-80

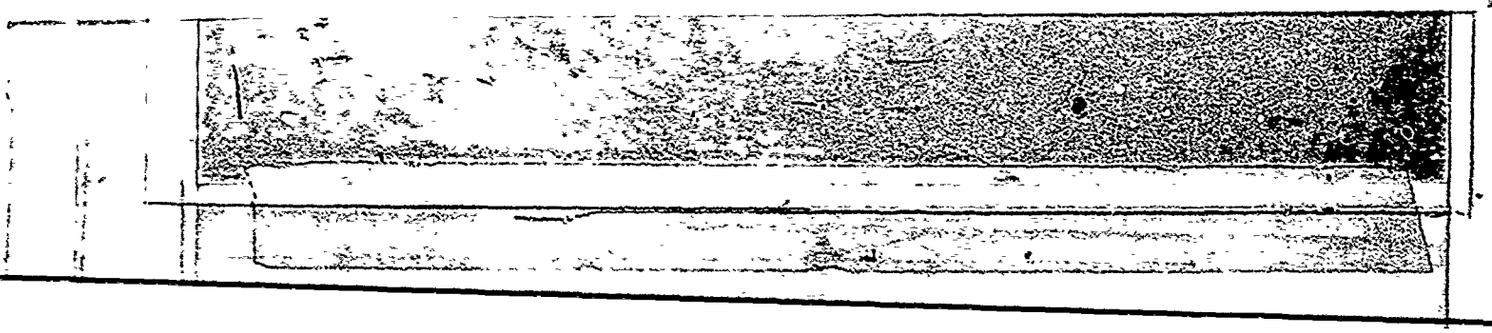
Development Status: The improved armament wiring completed engineering and is being installed in FY 1979 new production aircraft. The double density memory computer modification has completed all testing and commenced installation in E-121 (FY 1979).

Project Financial Plan:

	FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	35	$1,724	47	$1,714	20	$1,630	13	$7,987	14	$5,558	32	$8,028
O&MN Install.			(17)	$1,092	(35)	$2,451	(32)	$2,446	(15)	$1,200	(22)	$1,845
APN-6 Spares		$1,202		$410		$640						-0-

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	60	$11,928	38	$8,563					259	$47,141
O&MN Install.	(20)	$1,677	(32)	$2,683	(60)	$5,030	(26)	$2,180		20,604
APN-6 Spares										2,252
GRAND TOTAL										$69,997

Installation Data: The wiring installation commenced during the integrated configuration update of A-6E aircraft to the A-6E TRAM commencing with the induction of aircraft for this program in FY 1981. A-6E TRAM aircraft delivered prior to initiation of this modification will receive installation during scheduled Rewing (SLEP) conducted by the contractor in FY 1985 through FY 1990.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: KA-6D Reliability, Maintainability (R&M) and Service Life Extension Program (SLEP) (OSIP 5-82)

Models of Aircraft Affected: KA-6D

Description/Justification:

The KA-6D is the only carrier aircraft dedicated to the mission of inflight refueling. With the introduction of new fighter and attack aircraft to the fleet there will be an increase in the requirement for inflight refueling. In order to meet fleet tanker needs through the mid-1990's, the existing tanker assets must be upgraded in order to maintain readiness requirements. The existing KA-6D tanker force consists of older A-6 aircraft which were converted to the KA-6D configuration. This program will bring the configuration of the older tankers up to the latest configuration as well as incorporate improvements to extend the service life, and increase reliability and maintainability. The SLEP improvements will consist of the following:

a. Install new wings/wing material as required which includes new FS227 and FS288 bulkheads (made with 7050-T73 material which is more resistant to stress corrosion) and a new drag linkbrace which will approximately double the service life of the aircraft.

b. Increase the arresting hook strength to the same strength as the A-6E.

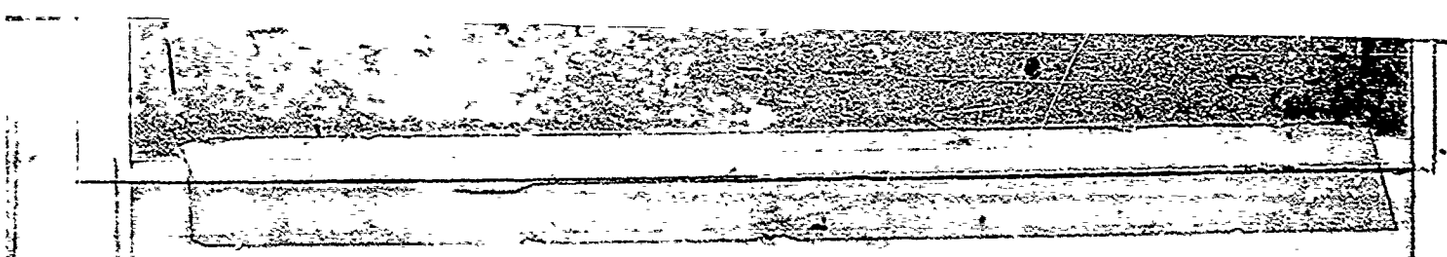
c. Modify the stabilizer shift mechanism and provide electrical switching to prevent failure and inadvertent actuation of spin assist in flight.

d. Improve flap/slat system by: (1) providing improved sealing of flap switch box, slat gear box and slat cam, (2) providing hermetically sealed switches, (3) replacing flap box cam and switches with more wear-resistant material, (4) providing higher strength slat actuator attach lugs, and (5) eliminating the 40 degree flap position.

e. Improve the integrity of the fuel system.

f. Complete rewire.

Development Status: All development is complete.



OSIP 5-82

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$10,404	6	$5,155	12	$13,361	12	$17,572	12	$18,605	5	$10,883
O&MN Install.					(2)	$4,796	(6)	$11,654	(12)	$23,310	(12)	$23,310
APN-6 Spares		$86		$300								

-9-

	FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					49	$ 75,980
O&MN Install.	(12)	$30,026	(5)	$16,725		109,821
APN-6 Spares						386
GRAND TOTAL						$186,187

Installation Data: Installation will be accomplished at the contractor's plant.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-6 Weapons Integration (OSIP 8-83)

Models of Aircraft Affected: A-6E

Description/Justification:

A variety of weapons and avionics subsystems are programmed for integration into the A-6E including stand-off air-to-ground weapons. To improve electronic management and systems control, common control units and management bus are required for reduction of weight and maintenance workload, economy of available space, and improved efficiency in control and data management. These improvements will include incorporation of a common control panel for projected weapons (with growth for compatibility with other new weapons), and incorporation of multiplex bus capability for weapons management.

Development Status: Prototype of the integrated missile panel (IMP) and multiplex bus configuration were conducted under Program Element Number 24134N in FY 1983.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$9,825	14	$7,874	32	$12,762	60	$25,704	60	$27,110	60	$28,285
O&MN Install.					(1)	$262	(14)	$3,668	(32)	$8,384	(60)	$15,720
APN-6 Spares				$342		$1,280						

	FY 1989		FY 1990		FY 1991		FY 1992		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	39	$20,460	38	$21,102					304	$153,122
O&MN Install.	(60)	$19,912	(60)	$19,912	(39)	$14,410	(38)	$14,148		96,416
APN-6 Spares										1,622
GRAND TOTAL										$251,160

Installation Data: Installation will be accomplished by the contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Radar Data Converter Improvements (OSIP 9-83)

Models of Aircraft Affected: A-6E

Description/Justification:

The Radar Data Converter (RDC) converts radar elevation/range data into a TV terrain clearance presentation. This allows the A-6 to operate at low altitude and avoid terrain during all weather conditions. The existing RDC was designed in the late 1950's using analog technology of that era. Consequently the old design is no longer producible and replacement components are unavailable. The new RDC utilizes modern digital technology to provide a factor of 10 increase in reliability (1,200 hrs vice 120) and built in test (BIT) for improved maintainability (approximately 12,000 manhours savings per year). The new unit provides increased safety with 256 azimuth bins vice 20 allowing small vertical objects such as radio towers to be displayed. Flight safety will also be enhanced with implementation of continuous BIT which provides the crew with an immediate warning of radar failure.

Development Status: AERMIP development contract was awarded to Kaiser Electronics in April 1980. Qualification testing commenced in December 1981. Flight testing completed in December 1982.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	10	$2,365	108	$7,022			108	$7,693	108	$8,100	334	$25,180
O&MN Install. "O" Level						-0-						-0-
APN-6 Spares		$175		$1,559		-0-						1,734
GRAND TOTAL												$26,914

Installation Data: Installation will be accomplished by organizational level personnel. Installation time is approximately one hour.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALR-67 Radar Receiving Set, Countermeasures (OSIP 51-84)

Models of Aircraft Affected: A-6E

Description/Justification:

This OSIP provides for the AN/ALR-67 installation provisions. The AN/ALR-67 GFE in FY 1985 and subsequent is contained in the AN/ALR-67 OSIP 118-85. The AN/ALR-67 Radar Receiving Set, Countermeasures Warning and Control System is the radar and missile warning system in advanced tactical aircraft (F/A-18, A-6E, & F-14). The AN/ALR-67 provides detection and direction finding (DF) over the entire RF spectrum of target tracking and missile control systems. It provides full hemispherical coverage in all platform installations. The AN/ALR-67 is a firmware reprogrammable system incorporating a high intensity alpha-numeric azumith display. The system is fully integrated, via the MIL-STD-1553 data buss, with other on-board EW equipments. The AN/ALR-67 provides significant improvements/enchancements in DF coverage, threat coverage and reliability/maintainability over equipments currently in use.

Development Status: Engineering development models were fabricated and have undergone extensive and various test and evaluation events. The reliability development test, environmental qualification test and TECHEVAL are complete. Operational effectiveness testing in the A-6E is complete. The AN/ALR-67 has been integrated with other EW systems and laboratory and ground testing is underway in the F/A-18. Approval for Limited Production (ALP) is planned for the second quarter of FY 1984.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	10	$12,729	32	$847	60	$2,198	60	$2,100	60	$1,883	60	$1,993
O&MN Install.					(20)	$1,401	(32)	$1,892	(50)	$3,505	(60)	$3,505
APN-6 Spares		$1,561		$82		$163						

OSIP 51-84

Project Financial Plan (Cont'd):

	FY 1990		FY 1991		FY 1992		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	44	$1,547					326	$23,297
O&MN Install.	(60)	$3,505	(60)	$3,505	(34)	$1,959		19,272
APN-6 Spares								1,806
GRAND TOTAL								$44,375

Installation Data: Installation of kits will be during Standard Depot Level Maintenance (SDLM) at Naval Air Rework Facility (NARF) and by the contractor.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/AAS-33A Detecting and Ranging Set, Incorporation of TSP-III Access Cover. (OSIP 140-84)

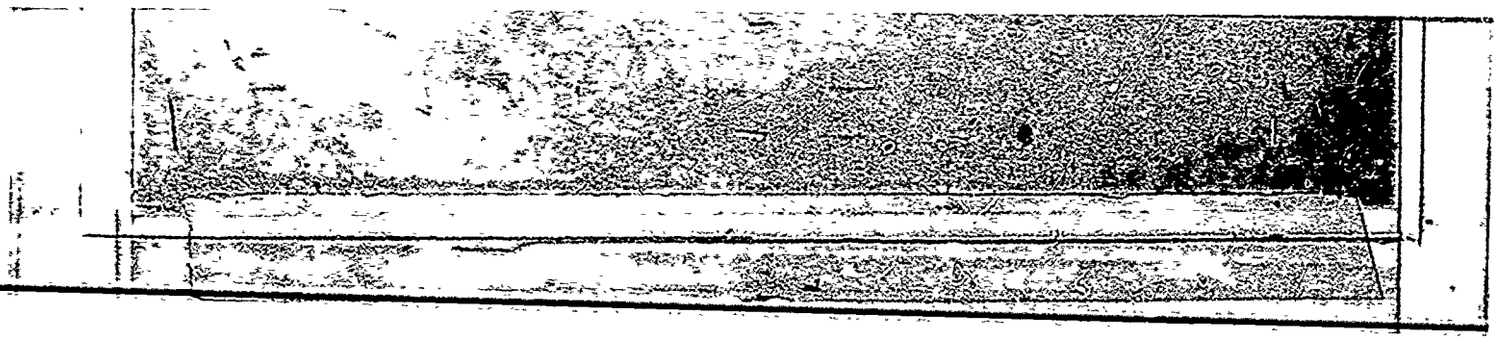
Models of Aircraft Affected: A-6E

Description/Justification:

This change is to add a removable crown to the upper ball and a removable Laser Receiver Transmitter (LRD). Addition of the crown to the upper ball maximizes the number of maintenance repair actions that can be accomplished without removal of the sensor package. The LRD will be modified to permit its removal from the upper ball assembly without necessitating removal of the sensor package.

The Turret Sensor Platform (TSP) package containing the Forward Looking Infrared (FLIR), Laser Receiver Designator (LRD), and Forward Air-Control Receiver (FAC) must be removed for most maintenance/repair actions. This removal exposes these sensors to excessive handling, cable damage and breakage, and other damage during disassembly/assembly. Futhermore, the removable LRD will decrease the removal, replacement and retest time at Intermediate and Depot levels to approximately 8 manhours from 24 manhours. The reduction in maintenance hours results from not having to: (1) drop the sensor package to gain access to LRD, (2) restuffing and (3) performing 100-level test. This change will improve maintainability and reduce supply support to one configuration.

Development Status: This change has been approved for production and a model is under test at Hughes Aircraft Corporation.



OSIP 140-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	24	$3,264	36	$4,765	36	$5,046	36	$5,341			132	$18,417
O&MN Install. (Kits)			(24)	$2,760	(36)	$4,140	(36)	$4,140	(36)	$4,140		15,180
O&MN Install. (Spares)			(12)	$1,380	(12)	$1,380	(14)	$1,610				4,370
APN-6 Spares		$1,500		$1,397		$1,901						4,798
GRAND TOTAL												$42,765

Installation Data: Installation to be performed by Contractor Depot Level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Global Positioning System (GPS) (OSIP 50-85)

Models of Aircraft Affected: A-6E

Description/Justification:

The NAVSTAR GPS system is designed to provide highly accurate passive position (16 meters), velocity (0.1 meters/sec) and time to users worldwide, passively and in all-weather conditions. The GPS equipment consists of a receiver/processor, control/display unit, data processor, antennas and antenna electronics. In the A-6E, the GPS system will replace the APN-153 doppler, providing in-flight align/inertial damping and highly improved navigation accuracy, enhancing weapons delivery and effectiveness in all mission areas.

Development Status: User equipment development commenced in FY 1980. Development testing commences in fourth quarter FY 1984 with operational evaluation scheduled for third quarter FY 1985. RDT&E is funded under program element number 64778N.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$5,100	1	$6,496	60	$26,412	60	$11,179	60	$11,833	60	$12,525
O&MN Install.							(1)	$36	(60)	$1,922	(60)	$1,922
APN-6 Spares				$127		$6,187		$2,101				

OSIP 50-85

Project Financial Plan (Cont'd):

	FY 1991		FY 1992		FY 1993		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	25	$5,524					266	$79,069
O&MN Install.	(60)	$1,922	(60)	$1,922	(25)	$735		8,459
APN-6 Spares								8,415
GRAND TOTAL								$95,943

Installation Data: Installation will be at the Naval Air Rework Facility (NARF) and Grumman during Standard Depot Level Maintenance (SDLM) or aircraft modification and by NARF field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-6E MAVERICK Integration (OSIP 52-85)

Models of Aircraft Affected: A-6E

Description/Justification:

Integration of the MAVERICK missile series in the A-6E aircraft will provide the fleet with an improved close air support and discrete target capability, with improved standoff and launch-and-leave capability over conventional free-fall weapons. Addition of MAVERICK capability requires modification of the twenty-one (21) Avionics Interface Sets (AIS) already procured under OSIP 8-83 in FY 1983 and FY 1984. This requires addition of new/modified SRAs to the existing integrated missile panel (IMP)/avionics interface unit (AIU). In addition, LAU-117 launchers and weapons umbilical cables are required to carry/employ the MAVERICK missile. This program provides for retrofit of existing AISs and for 20 launchers/unbilical cables per operating squadron.

Development Status: RDT&E,N funding has been budgeted under Program Element No. 63313. Evaluation of Laser MAVERICK integration is planned to start in FY 1985, with OPEVAL completed in FY 1986. OPEVAL for LASER MAVERICK with the A-4M aircraft was completed in July 1982. OPEVAL for IIR MAVERICK with A-7E aircraft was completed. Approval for full production (AFP) for the A-6E will be extended by similarity from these applications following successful A-6E integration testing

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	21	$5,512		$8,287		$4,349	21	$18,148
O&MN Install I/O		-0-						-0-
APN-6 Spares		$600		$563				1,163
GRAND TOTAL								$19,311

Installation Data: AFC kits consist of SRAs, which will be incorporated at I/O level. Aircraft wiring will be incorporated with ALR-67 under OSIP 10-83.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Combination Radio (AN/ARC-182) (OSIP 7-86)

Models of Aircraft Affected: KA-6D

Description/Justification:

The AN/ARC-182 combination radio is a new radio for all tactical aircraft. It provides VHF-FM (30-88MHz), VHF-AM (108-156MHz), VHF (156-174MHz) and UHF-AM/FM (255-400MHz) securable voice communications. Navy decision Coordinating Paper W0661-CC approved the combination radio AN/ARC-182 for tactical aircraft, including KA-6D aircraft.

Development Status: The radio is being developed under RTD&E,N Program Element Number 24163N, Project W0661-CC. Approval for full production (AFP) will be extended to the KA-6D by similarity.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	24	$6,127	28	$2,479	23	$2,156					75	$10,762
O&MN Instal..					(24)	$235	(28)	$274	(23)	$225		734
APN-6 Spares		$50		$62		$53						165
GRAND TOTAL												$11,661

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and by field mod team (FMT).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: HARM (OSIP 8-86)

Models of Aircraft Affected: A-6E TRAM

Description/Justification:

Integration of the HARM Missile in the A-6 TRAM aircraft will provide the fleet an improved anti-radiation missile for the A-6 with additional stand-off range and self-protection capability. Addition of HARM in the A-6E TRAM aircraft requires interface with Weapon Control System Improvement (WCSI) configured aircraft equipped with the CP-3B mission computers. This modification will provide the necessary nonrecurring effort for retrofit of HARM capability into the A-6E TRAM, procure modification kits and HARM peculiar avionics for retrofit, provide for the procurement of Peculiar Ground Support Equipment (PGSE) and provide the procurement of LAU-118 launchers for retrofit aircraft. The HARM avionics designated AWG-( ) consists of the Command Launcher Computer (CLC) and the Control Indicator (CI). The HARM avionics will also interface with the ALR-67 which is being provided for A-6E TRAM installation under a separate OSIP program.

Development Status: RDT&E,N funding under Program Element Number 64360N has been budgeted through FY 1982. System Navy Technical Evaluation (NTE) is to be completed in Program Element Number 24134N in November 1984. OPEVAL of the A-6 HARM integration will be completed in May 1985. HARM will already be approved for full production based on testing with A-7 type aircraft.

Project Financial Plan:

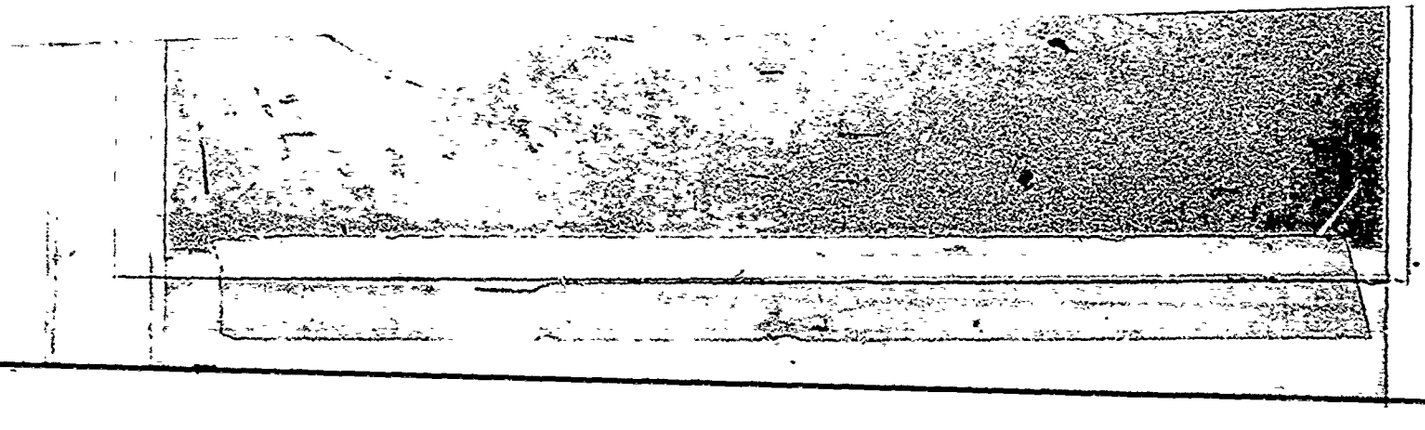
	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	32	$22,254	60	$22,578	60	$20,567	60	$20,627	60	$21,833
O&MN Install.					(32)	$470	(60)	$881	(60)	$881
O&MN Factory Training						$86				
APN-6 Spares		$1,878		$4,355						

OSIP 8-86

Project Financial Plan (Cont'd):

	FY 1991		FY 1992		FY 1993		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	45	$17,330					317	$125,189
O&MN Install.	(60)	$881	(60)	$881	(45)	$687		4,681
O&MN Factory Training								86
APN-6 Spares								6,233
GRAND TOTAL								$136,189

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM) at the Naval Rework Facility (NARF) and at the contractor's plant.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: FLAP/SLAT System Improvement (OSIP 9-86)

Models of Aircraft Affected: A-6E, KA-6D, EA-6A

Description/Justification:

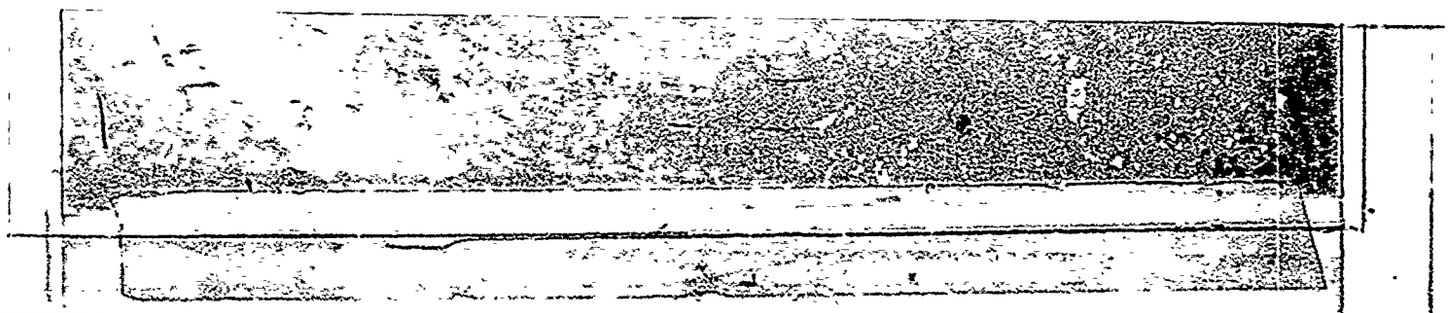
Various problems have been experienced in the flap and slat systems: (1) water intrusion and corrosion of components in the flap switch box and wear of the switch cam, (2) water intrusion and wear of components in the slat gear box, (3) structural failure of the slat actuator attach lugs, and (4) water ingress and freezing resulting in failure of the slat can. This change will correct these deficiencies by: (1) providing improved sealing of the flap switch box, slat gear box, and slat can; (2) providing hermetically sealed switches in the flap switch box and slat box and slat gear box; (3) replacing cam and switch wear surfaces with more wear-resistant material; and (4) providing slat actuator lugs of higher strength which are fabricated to revised tolerances to prevent induced bending loads due to clamp-up. In addition, the slat gear box will be designed to be removable for ease of maintenance and the front wing cam will be revised to provide a thicker web to permit installation/removal of the slat can from the front of the beam.

Development Status: Development is complete. This change was incorporated in FY 1982 production aircraft.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	100	$6,784	100	$4,789	78	$3,954	78	$4,185			356	$19,71.
O&MN Install.			(50)	$592	(121)	$1,482	(141)	$1,615	(44)	$496		4,185
O&MN Training		$40										40
APN-6 Spares		$659		$696		$455		$487				2,297
GRAND TOTAL												$26,234

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM) at the Naval Air Rework Facilities (NARF's), Norfolk and Alameda, and during the TRAM update and KA-6D conversion programs at Grumman.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Stand-off Air-to-Ground Weapons (OSIP 10-86)

Models of Aircraft Affected: A-6E TRAM

Description/Justification:

The command guidance schemes for follow-on standoff air-to-surface weapons projected for use with the A-6E aircraft require data-link commands from the aircraft to the missile in flight, and for receipt of feedback signals from the missile to the aircraft. This feedback includes video signals from the weapon seeker for display on existing A-6E TRAM displays to provide target selection and aimpoint refinement through operator control inputs. The A-6 will utilize an enhanced WALLEYE II data link pod mounted on the centerline bomb station for data link and video monitoring of follow-on standoff air-to-surface weapons. This OSIP provides the enhanced WALLEYE II pods for use on the A-6E.

Development Status: Development of the Walleye II data link pod is complete. MUX bus capability to the centerline pylon for digital data link pod capability and video cabling to the centerline will be provided by OSIP 8-83, Weapons Integration.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	30	$10,947	75	$21,256	50	$15,000	50	$15,878	30	$10,084	235	$73,165
O&MN Install. "O" & "I" Level		-0-										-0-
APN-6 Spares		$1,946		$4,306		$2,910						9,164
GRAND TOTAL												$82,329

Installation Data: Installation will be accomplished at intermediate and organizational level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Strobe Lights (OSIP 11-86)

Models of Aircraft Affected: KA-6D/A-6E

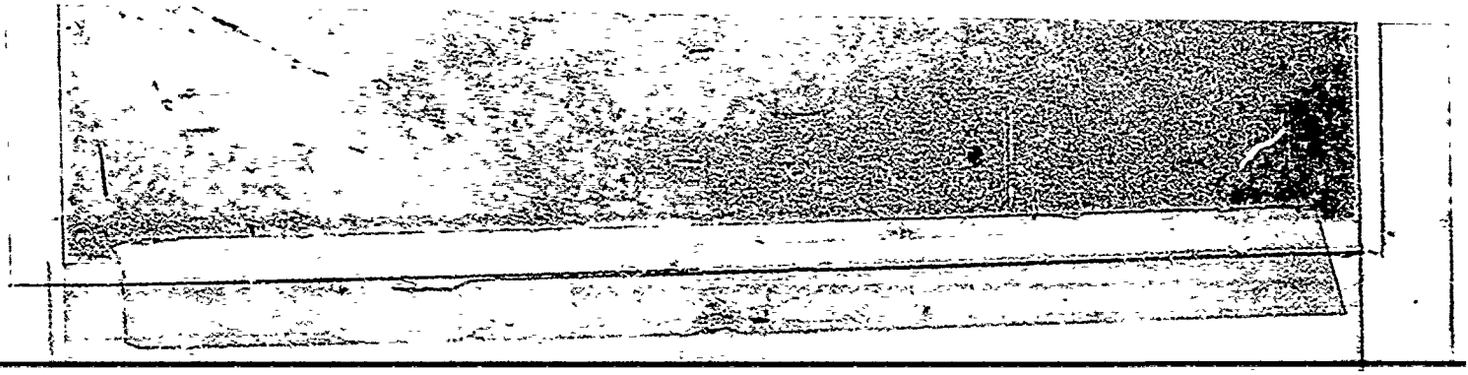
Description/Justification:

The present anti-collision lights are mechanically oscillating units with incandescent bulbs. They operate in non-sealed assemblies which are vulnerable to contamination and water intrusion. Consequently, these lights are extremely unreliable, requiring constant maintenance. Strobe lights are visible at a greater distance providing increased safety margins. This is especially important now that camouflage paint schemes are being implemented. This improvement will replace the obsolete lights with modern, solid state strobe light systems. The strobe lights have the same size and form factors as the present anti-collision lights.

Development Status: Grummman has procured A-6 configuration strobe lights from Grimes Corporation. Testing will be completed by the first quarter FY 1985.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	80	$5,022	80	$3,496	80	$3,700	80	$3,916	46	$2,383
O&MN Install.			(80)	$179	(80)	$179	(80)	$179	(80)	$179
APN-6 Spares		$600		$503						

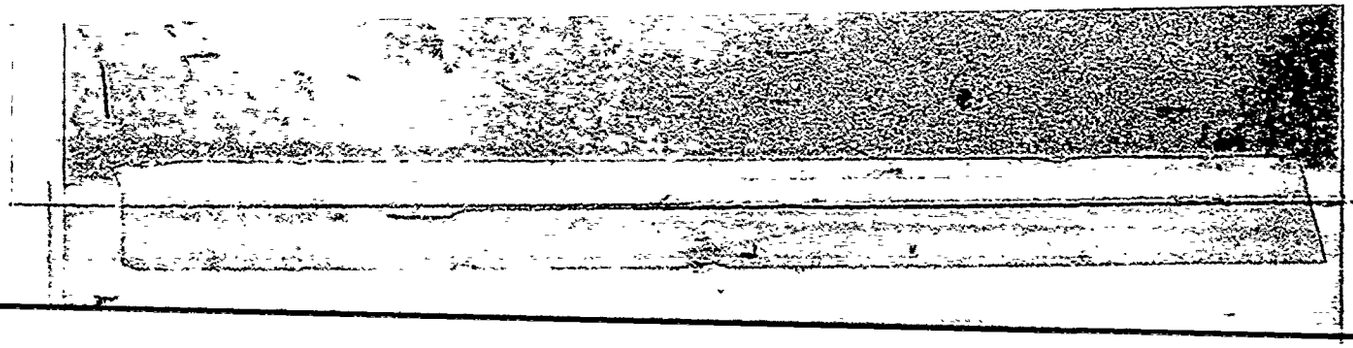


OSIP 11-86

Project Financial Plan (Cont'd):

	FY 1991		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			366	$18,517
O&MN Install.	(46)	$103		819
APN-6 Spares				1,103
GRAND TOTAL				$20,439

Installation Data: This item is a one-for-one replacement at Naval Air Rework Facility (NARF) Standard Depot Level Maintenance (SDLM) Field Team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Digital Fuel Quantity (OSIP 12-86)

Models of Aircraft Affected: A-6E, KA-6D

Description/Justification:

The current fuel quantity system (FQS) uses capacitance probes and low level capacitance signals which are prone to error due to moisture and corrosion-induced resistance changes in connectors, splices and sensing lines. System problems cause numerous aborted sorties and require over 13,000 maintenance manhours per year for trouble shooting and repair efforts. Throughout FY 1981, 1982 and FY 1983, the fuel and fuel quantity system problems continued to rank as number one or two in the list of equipments which cause the A-6E and KA-6D aircraft to be "not mission capable." Additionally, the existing mechanical fuel quantity indicator is unreliable. The proposed system will use digital signals from the fuel probes to the indicator and a solid state indicator with built-in test. The projected advantages of the new FQS are improved reliability, increased accuracy and improved maintainability.

Development Status: A preliminary design has been completed by the Naval Air Rework Facility, Norfolk. A prototype system was fabricated with flight test completed by early FY 1985.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	64	$6,287	132	$7,634	132	$8,081	83	$5,378		
O&MN Install.					(58)	$452	(110)	$854	(121)	$930
O&MN Training		$43								
APN-6 Spares		$964		$1,306		$1,397				

OSIP 12-86

Project Financial Plan (Cont'd):

	FY 1991		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			411	$27,380
O&MN Install.	(122)	$937		3,173
O&MN Training				43
APN-6 Spares				3,667
GRAND TOTAL				$34,263

Installation Data: The Digital Fuel Quantity System will be installed during Standard Depot Level Maintenance (SDLM) at the depot and during the drive-in modification programs at Grumman.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Analog-to-Digital Converter (OSIP 13-86)

Models of Aircraft Affected: A-6E

Description/Justification:

The A-D converter provides a primary analog-to-digital interface between the ASQ-155 computer and the major weapons systems components. The existing AN/CV-3163 A/D and D/A converter was designed in the 1966 timeframe using now obsolete diode-transistor logic. Consequently, due to its poor reliability and corrosion problems, it is becoming increasingly difficult to repair. This is evidenced by its decreasing Mean Time Between Failure (MTBF) which was greater than 200 hours in CY 1978 and less than 120 hours in CY 1980. Due to its obsolete DTL logic, the CV-3163 converter will require extensive redesign or it will be completely unsupportable in the late 1980's. The new converter is being designed using modular avionic program (MAP) standard module technology which will increase reliability tenfold and should result in life cycle cost savings approximately $50 million greater than the acquisition costs of the new converter.

Development Status: Development will commence in the second quarter FY 1984. Qualification and flight testing will be completed in FY 1985.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$4,335	36	$12,370	36	$13,042	36	$13,481	36	$14,270
O&MN Install. "O" Level		-C-								
APN-6 Spares				$3,668		$2,525		$2,583		

OSIP 13-86

Project Financial Plan (Cont'd.):

	FY 1991		FY 1992		FY 1993		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	36	$15,105	36	$15,988	36	$16,924	253	$105,515
O&MN Install. "O" Level								-0-
APN-6 Spares								8,776
GRAND TOTAL								$114,291

Installation Data: Installation will be a one for one replacement of the present A to D converter at the Organizational (Fleet) level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Global Positioning System (GPS) (OSIP 14-86)

Models of Aircraft Affected: KA-6D

Description/Justification:

The NAVSTAR GPS system is designed to provide highly accurate position (16 meters), velocity (0.1 meters/sec) and time to users worldwide passively and in all-weather conditions. The GPS equipment consists of a receiver/processor, control/display unit, data processor, antennas and antenna electronics. In the KA-6D the GPS system will replace the LTN-211 Omega navigational system, providing in-flight align/inertial damping and highly improved navigation accuracy.

GPS in the KA-6D will vastly improve its limited navigation capability, enhancing remote station keeping, tanker rendezvous and field instrument landing capability.

Development Status: User equipment development commenced in FY 1980. Vender selection based on user equipment prototype aircraft will be complete by mid 1984. RDT&E is funded under program element numbers 63401N, 64778N, 35164N.

Project Financial Plan:

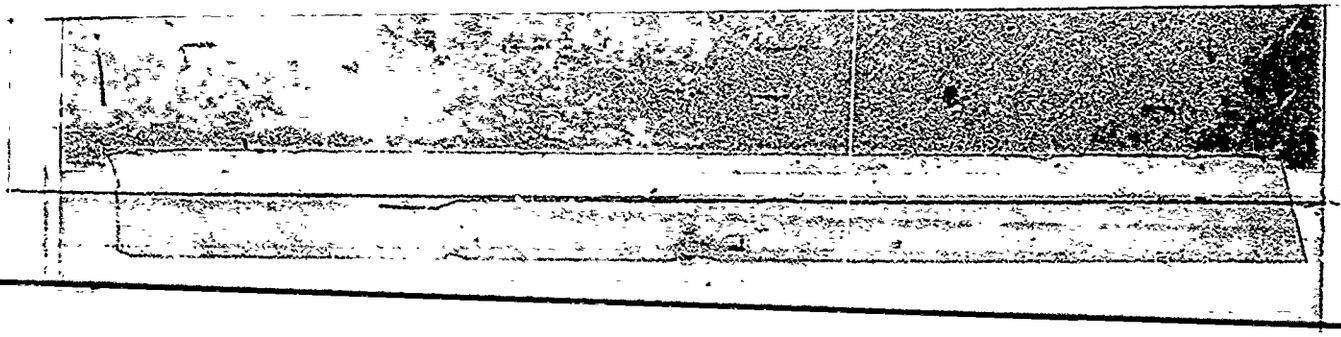
	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	18	$6,341	21	$4,422	18	$3,492	18	$3,696		
O&MN Install.					(18)	$608	(21)	$650	(18)	$529
APN-6 Spares		$760		$1,082		$658				

OSIP 14-86

Project Financial Plan (Cont'd):

	FY 1991		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			75	$17,951
O&MN Install.	(18)	$529		2,316
APN-6 Spares				2,500
GRAND TOTAL				$22,767

Installation Data: Installation will be at the Naval Air Rework Facility (NARF) and Grumman during Standard Depot Level Maintenance (SDLM) or aircraft modification and by NARF field team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: ALQ-99 Pods (OSIP 19-79)

Models of Aircraft Affected: EA-6B

Description/Justification:

The refurbishment of existing pods will increase operational capability, system readiness, and enhance flight safety. During 1976/1977, 60 unsatisfactory reports (UR's) were generated due to ALQ-99 pod anomalies. These improvements will reverse this trend and will lessen significantly the damage to pod components which occurs due to circuitry malfunction. Typically arcing damage of this type requires more than $300,000 for repair of each pod at the depot. Timely address of ALQ-99 anomalies will impact life cycle cost and operational readiness very favorably. Major improvements will include the universal exciter which will improve exciter reliability and capability, the transmitter reliability improvement program which updates all high band transmitters to the latest configuration, and the low band improvement program which updates bands 1/2 to the latest configuration.

This program will procure additional ALQ-99 jammer pod components peculiar to the EXCAP to ICAP II update and ICAP I MOD. These assets are required because of current inventory objective shortages, requirements of the U.S. Marine Corps threat spectrum revision, and reliability/maintainability improvements in existing pods.

Development Status: Development is complete. All components have approval for full production (AFP) except the universal exciter which has approval for limited production (ALP).

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$8,088		$21,944		$21,452		$37,989		$38,978
O&MN Install.						$850		$600		$600
APN-6 Spares		$807		$1,431		$5,688		$7,415		$817

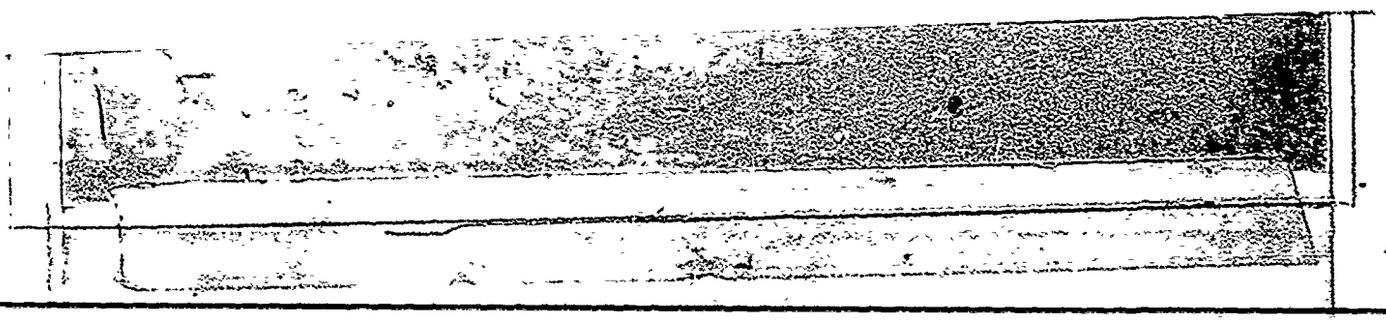
OSIP 19-79

Project Financial Plan (Con't):

	FY 1987		FY 1988		FY 1989		FY 1990		FY 1991		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$53,901		$43,757		$46,317		$49,026		$25,815	*	$346,367
O&MN Install.		$600		$600								3,250
APN-6 Spares		$4,998		$2,197		$2,301						25,654
GRAND TOTAL												$375,271

* Aircraft quantities not applicable.

Installation Data: Installation will be accomplished by Naval Weapons Support Center (NWSC) Crane, Indiana during pod refurbishment.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: EA-6A Weapons System Update (ALQ-76/86) (OSIP 13-81)

Models of Aircraft Affected: EA-6A

Description/Justification:

The present EA-6A weapon system is a manually operated electronic countermeasures system (ECM) which has been degraded due to length of service life. The present system has the potential of being a viable asset in the electronic warfare environment if the passive and active systems are updated to function as they were originally intended to do. Contemplated improvements to the AN/ALQ-86 passive ECM system and the AN/ALQ-76 active system are as follows:

a. ALQ-76: Incorporation of the reliability and maintainability (R&M) improvements as well as minor changes to the present system will provide increased jammer power output and allow the operator greater ease of integrating jammer status and control with the ALQ-86 panoramic indicator.

b. ALQ-86: Improved reliability and maintainability, and update of the ALQ-86 passive receiver system will provide increased clarity, operator controllability and flexibility of the present system.

Development Status: R&M improvements have been identified by the Pacific Missile Test Center (PMTC). Due to outdated components, producibility of replacement items is no longer feasible. Technical testing will be accomplished at the Naval Air Test Center by follow-on test and evaluation. The Airframe Change is being installed in accordance with AFC-504. ALQ-76 and ALQ-86 development was completed on FY 1982 Contracts. ECP's for the ALQ-76 and ALQ-86 have been received for updating the equipment.

Project Financial Plan:

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$4,320	1	$8,295	3	$9,987	4	$11,362	5	$10,537
O&MN Install.					(1)	$420	(3)	$1,822	(4)	$2,865
O&MN Training								$400		
APN-6 Spares						$2,006		$1,053		$6,206

OSIP 13-81

Project Financial Plan (Cont'd):

	FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	6	$9,841			19	$54,342
O&MN Install.	(5)	$3,367	(6)	$2,740		11,214
O&MN Training						400
APN-6 Spares						9,265
GRAND TOTAL						$75,221

Installation Data: Installation will be accomplished b assembly of components at PMTC/NAC and contractor. The airframe change (AFC) will be installed by the Naval Air Rework acility (NARF) during Standard Depot Level Maintenance (SDLM) and by field mod team (FMT).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: ICAP-I Update Program (Signal Data Convertor/Digital Display/Inertial Navigation/AN/AYK-14 Computer) (OSIP 14-81)

Models of Aircraft Affected: EA-6B (ICAP I)

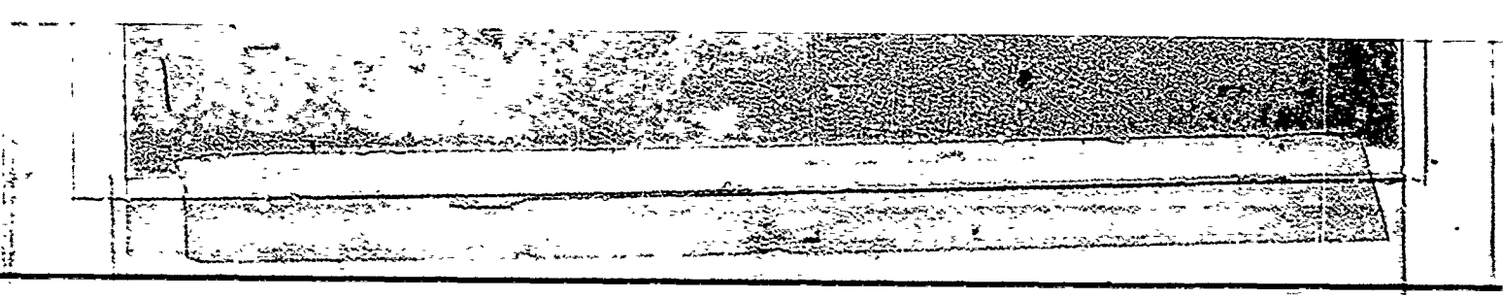
Description/Justification:

The requirements of OSIP 14-81 (SDC/INS) and OSIP 15-83 (AN/AYK-14) are combined under this OSIP. This is a combined effort to install the AN/ASN-123 signal data converter (SDC)/digital display group (DDG), the AN/ASN-130 inertial navigation system (INS), and replace the CFE AN/AYA-6 computer with the Navy standard AN/AYK-14 computer in the EA-6B ICAP aircraft. The SDC weapon replaceable assembly (WRA) is the highest failure component. Alone it accounts for 20 percent of all system failures. Despite the incorporation of eight separate engineering improvements, reliability is still not adequate to support minimal readiness standards. Also, the maintainability factors preclude improvements with existing equipments. This effort will provide for installation of the AN/ASN-123 navigational display system presently installed in the SH-3 helicopter and in EA-6B production aircraft.

The AN/ASN-130 inertial navigation system is a modern, accurate navigation system that will replace the present dead-reckoning doppler navigation system currently installed in the EA-6B. The doppler navigation system has not proven to be reliable and fails to provide the necessary accuracy for more effective employment of the EA-6B weapon system. The AN/ASN-130 is being installed in the EA-6B/F-18 production aircraft. This commonality will provide improved integrated logistic support, thereby enhancing system readiness while providing greatly increased operational effectivity.

The AN/AYK-14 computer will replace the AN/AYA-6 computer. The AN/AYA-6 group has been high on the EA-6B readiness degradation list since 1977. Its meantime between failure (MTBF) over that period has averaged 40 hours. It has 32K memory (completely utilized) and an inadequate built in test (bit). The AN/AYK-14 has demonstrated six to seven times the AN/AYA-6 MTBF during ICAP II development. The AN/AYK-14 posesses 192K memory which will accommodate future growth, and full background and on demand bit. This change allows use of ICAP II software written in higher order language. This will standardize computer language in all versions of the EA-6B. The AN/AYK-14 also utilizes MILSTD 1553 interfaces which greatly simplifies the task of integrating future equipment such as the JTIDS, GPS, and ALQ-149 into the EA-6B.

This combined effort will reduce total installation cost while at the same time measurably enhancing reliability, improve readiness, and lessen life cycle cost requirements.



OSIP 14-81

Development Status: This installation will be a retrofit application of the existing AN/ASN-123 with a form-fit-function installation developed by Grumman. The AN/ASN-123 is approved for full production and has approval for limited production in the EA-6B. The AN/ASN-130 has approval for full production (AFP). AFP is anticipated in the second quarter of FY 1984 for the remaining ICAP I systems. The AN/AYK-14 development is complete. Navy TECHEVAL and OPEVAL was completed in April 1983.

Project Financial Plan:

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (SDC/AYK-14)		$1,066	11/0	$9,471	10/11	$22,917*	10/10	$16,171	10/10	$19,607	10/10	$21,942
O&MN Install.								$506		$496	(11)	$36,026
O&MN Training								$80				
APN-6 Spares				$3,711		$1,773		$1,719		$829		$1,108

	FY 1987		FY 1988		FY 1989		FY 1990		FY 1991		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (SDC/AYK-14)	6/10	$18,639	0/6	$4,334							57/57	$114,147
O&MN Install.	(10)	$27,189	(10)	$27,189	(10)	$27,189	(10)	$27,189	(6)	$16,314		162,098
O&MN Training												80
APN-6 Spares		$1,075										10,215
GRAND TOTAL												$286,540

NOTE: $9,145 of this total was executed under OSIP 15-83 (AYK-14).

Installation Data: Installation will be accomplished by the contractor concurrent with EA-6B Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: EA-6A Radar and Navigation Update (OSIP 53-82)

Models of Aircraft Affected: EA-6A

Description/Justification:

Currently, the APQ-103 radar group constitutes one of the highest readiness degradations in the EA-6A. This results from the obsolete tube type design; which is a direct derivation from the A-6A APQ-92 fire control weapon system. Further, with the removal of the A-6A from Fleet service and its replacement by the A-6E, and with the retrofit of the APS-130 into the EA-6B, the logistic support posture of the APQ-103 becomes untenable. Retrofit of the APS-130 into the EA-6A will increase the mean time between failure (MTBF) to 118 hours. This improvement is essential due to the importance of the search radar in determining aircraft positioning (as retrofit of an inertial navigation system (INS) is not contemplated). Additionally, maintainability will be massively increased due to reinstitution of commonality with the A-6E/EA-6B radar systems.

The instaliation of the APS-130 radar in the EA-6A will upgrade the radar system. Additionally, the entire navigation and attitude reference system will be updated with systems including the APN-200, ASN-50, ARA-63, APN-154, and AJB-3.

The requirements of OSIP 57-70 (DECM Improvements) and OSIP 53-82 (Radar and Navigation Update) for FY 1984 and subsequent have been combined under this OSIP.

Development Status: All new items are approved for full production.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	7	$6,007	3	$3,223	3	$3,630	3	$8,121	3	$5,401
O&MN Install.			(1)	$74	(3)	$466	(4)	$622	(5)	$777
O&MN Training		$190				$200				
APN-6 Spares		$1,460		$330		$231				

OSIP 53-82

Project Financial Plan (Cont'd):

	FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					19	$26,382
O&MN Install.	(3)	$465	(3)	$465		2,369
O&MN Training						390
APN-6 Spares						2,021
GRAND TOTAL						$31,662

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and by field mod team (FMT).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Catapult and Arrestment Fatigue Life Extension (Structural Improvements) (OSIP 32-85)

Models of Aircraft Affected: EA-6B

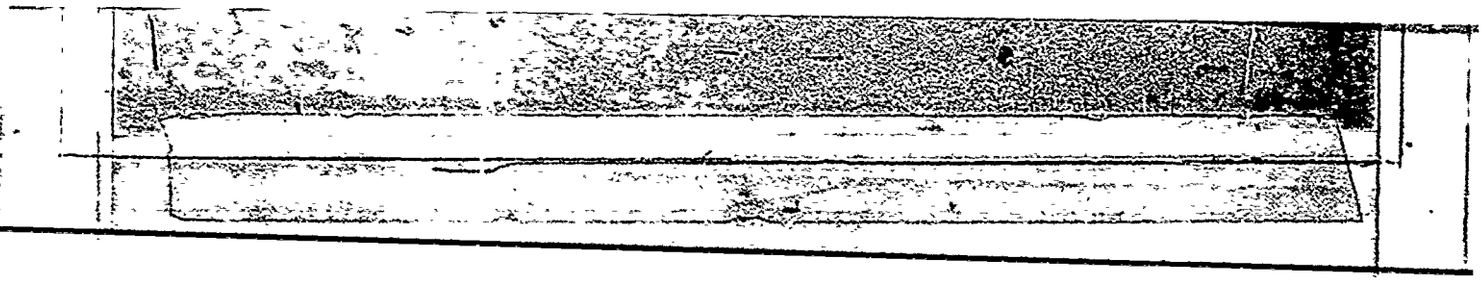
Description/Justification:

This is an omnibus structural modification containing fixes for areas found to be deficient during aircraft fatigue tests which have been funded and which are scheduled for completion during the third quarter of FY 1984. The minimum fixes anticipated are a keel breather change and fuselage structure longeron reinforcement/replacement. The EA-6B aircraft are presently certified for a total of 1,200 aircraft carrier catapults and arrested landings. Present projections show 15 aircraft will exceed their carrier catapult and arrestment service life by 1985. EA-6B Operating Aircraft Inventory will be severely degraded unless anticipated fixes are funded and incorporated in a timely manner. This program includes 51 ICAP aircraft, 15 EXCAP to ICAP II aircraft and all production ICAP II aircraft for a total of 124 aircraft.

Development Status: A contract has been let for the test article. The final test report is due in July 1984. No Approval for full production (AFP) is required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	10	$1,490	10	$769	12	$2,047	12	$1,034	12	$1,095	12	$1,159
O&MN Install.			(10)	$2,620	(10)	$2,620	(12)	$3,144	(12)	$3,144	(12)	$3,144
APN-6 Spares		$106		$75		$94						



OSIP 32-85

Project Financial Plan (Cont'd):

	FY 1991		FY 1992		FY 1993		FY 1994		FY 1995		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$1,227	12	$1,208	16	$1,832	16	$1,939			124	$13,890
O&MN Install.	(12)	$3,144	(12)	$3,144	(12)	$3,144	(16)	$4,192	(16)	$4,192		32,488
APN-6 Spares												275
GRAND TOTAL												$46,653

Installation Data: Installation will be accomplished by the contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-76 Pods (OSIP 51-85)

Models of Aircraft Affected: EA-6A

Description/Justification:

The refurbishment of existing pods and associated transmitters will increase system readiness and operational capability. This program will extend the service life of pods originally deployed in the 1960's and will provide minimum essential reliability and operational improvements in transmitters to ensure a viable capability into the 1990's. Planned improvements include new pod wiring, replacement of power supplies and expanded frequency coverage by converting existing low band transmitters. Additional jammer pods will be procured under this program to fill shortages in Marine, Navy and FEWSG squadrons.

Development Status: Development is complete. No approval for full production (AFP) is required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	*	$1,891	*	$1,919	*	$5,210	*	$4,168			*	$13,188
O&MN Install.				$135		$135		$344		$257		871
APN-6 Spares		$519		$551		$1,467						2,537
GRAND TOTAL												$16,596

* Aircraft quantities not applicable.

Installation Data: ALQ-76 pod and transmitter update will be accomplished by the contractor and/or designated depot.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Computer Interface Unit (CIU) and Encoder Update (ENC) (OSIP 38-86)

Models of Aircraft Affected: EA-6B

Description/Justification:

The AN/AYA-6 Central Computer Group has consistently been a major cause of EA-6B readiness degradation since aircraft production deliveries commenced in 1971. EA-6B Fleet Reliability Reports for the ICAP aircraft show that the Computer Interface Unit (CIU) and comparator converter are consistently among the top three high failure Weapon Replaceable Assemblies (WRAs) which degrade the ALQ-99 On Board System (OBS). The CIU is among the top ten items in the EA-6B cannibalization summary and accounts for 30 percent of all OBS failures. This update will greatly increase weapons systems availability. Additionally, the update will improve Direction of Arrival (DOA) measurement and signal identification and eliminate the comparator converter as a system processing choke point.

Development Status: Reliability and Maintainability (R&M) changes have been incorporated in FY 1982 and subsequent production aircraft. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$3,311	1	$511	9	$7,101	9	$5,453	9	$5,463
O&MN Install.					(1)	$63	(9)	$441	(9)	$438
O&MN Training				$125						
APN-6 Spares						$1,992		$1,485		$1,590

OSIP 38-86

Project Financial Plan (Cont'd):

	FY 1991		FY 1992		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	9	$5,787			37	$27,626
O&MN Install.	(9)	$430	(9)	$414		1,786
O&MN Training						125
APN-6 Spares		$1,684				6,751
GRAND TOTAL						$36,288

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM) and during contractor modification.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APR-43 (OSIP 26-79)

Models of Aircraft Affected: A-7E

Description/Justification:

The AN/APR-43 is a radar/missile warning receiver which provides mission essential warning and direction finding for CW threat systems. The APR-43 augments and is fully integrated with the AN/ALR-45F. The system is a form factor replacement for the AN/ALR-50, and as such keeps airframe changes to a minimum.

Development Status: TECHEVAL and OPEVAL have been completed in the A-7E. Approval for Limited Production (ALP) for 57 units was granted in October 1983. FOT&E is ongoing and will continue through FY 1984.

Project Financial Plan:

	FY 1979		FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	25	$5,174		$4,225	64	$14,372	42	$13,556	40	$5,111	113	$3,100
O&MN Install.							(12)	$296	(133)	$2,062	(26)	$288
APN-6 Spares		$58				$909		$3,390				

OSIP 26-79

Project Financial Plan (Cont'd):

	FY 1986		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			284	$45,538
O&MN Install.	(113)	$1,852		4,498
APN-6 Spares				4,357
GRAND TOTAL				$54,393

NOTE: See OSIP 113-85 for GFE procurements beginning with FY 1985 and subsequent years.

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and by both NARF and contractor field teams.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: HARM (OSI: 13-80)

Models of Aircraft Affected: A-7E/TA-7C (with FLIR Provisions)

Description/Justification:

Retrofit of HARM capability into FLIR configured A-7E aircraft will require interface with the TC2A computer, multiple munitions wing wiring (MMW), head-up display (HUD), APQ-126 and existing armament station control unit (ASCU). In addition, retrofit modification to LAU-118 launchers to provide HARM capability will be required in sufficient quantities to support A-7E/HARM aircraft deployments. This modification will provide the necessary nonrecurring effort for retr[illegible] of HARM capability into the A-7E, procure modification kits and HARM peculiar avionics for retrofit, and provide the nonrecurring and procurement of modified kits for the AERO 5 launcher for retrofit. The HARM peculiar avionics designated AWG-25 consists of the Command Launch Computer (CLC) and the Control Indicator (CI). The CLC is about 936 cubic inches and will be installed in the A7E avionics bay. The CI will replace the existing Radar Warning Receiver (RWR) control panel in the cockpit and will perform both HARM and radar warning receiver (RWR) functions. In addition, the HARM avionics will interface with the APR-43 and ALR-45F replacement processor which are being provided for A7E installation under a separate program.

Development Status: A DSARC II was held in February 1978 which directed the HARM program to proceed to full-scale engineering development and allowed use of procurement funds prior to provisional approval for service use (PASU) or approval for service use (ASU) for limited production. A DNSARC IIB was held in October 1980 to determine readiness to proceed to limited production with initial procurement funds. HARM NTE is complete and OPEVAL was completed in 1982. DSARC III approval to proceed with limited production was granted on 30 March 1983. Approval for full production (AFP) is planned in mid FY 1984. SECDEF Memo of 23 Mar 1978 authorized deviation from normal DOD Directives 5000.1 and 5000.2 policy.

OSIP 13-80

Project Financial Plan:

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	24	$16,988	44	$21,571	24	$13,948	65	$11,796	50	$3,460
O&MN Install.					(24)	$708	(44)	$955	(25)	$645
O&MN Training				$50		$50				$52
APN-6 Spares		$1,609		$701		$6,928				

	FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$815			219	$68,576
O&MN Install.	(84)	$1,626	(42)	$656		4,490
O&MN Training						202
APN-6 Spares						9,238
GRAND TOTAL						$82,508

Installation Data: Installation will be accomplished by contractor mod team and Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: TF-41 Engine Hot Section Extended Life Program (HELP) (OSIP 16-81)

Models of Aircraft Affected: A-7E

Description/Justification:

Component improvements, previously designed and tested to assure achievement of a 500-hour non-derated hot section repair capability (Lead the Fleet Component - HPT-1 Vane), began service incorporation April 1979. Incorporation of further hot section and control component redesigns are required to improve operational readiness, to reduce the risk of critical turbine part failure, minimize the cost of ownership, and provide the capability to maintain engine performance throughout a 1000-hour service interval. These hardware changes will collectively restore the TF-41 engine to cost effective levels of reliability and performance by increasing turbine durability and reducing peak hot section temperatures. State-of-the-art technology and greater contractor expertise are reflected in these redesigns.

Improved operational readiness will be attained by increasing the availability of the TF-41 engine. The engine configuration resulting from the Lead the Fleet ("LTF") program (OSIP 4-78) will require hot section refurbishment (engine disassembly) at 500-hour intervals due to HPT-1 vane distress and relatively low life limited components within the high pressure turbine section. The causes of the distress and relatively low life limits are high peak temperatures produced by the existing combustors, basic design of the existing HPT-1/-2 blade attachments, insufficient HPT-1/-2 blade airfoil capability to withstand even limited elevated temperature exposure, metal cooling capability of even the "LTF" bullnose HPT-1 vane configuration, and an inefficient electronic control (LTA) which does not effectively limit transient temperature overshoots and is adversely affected by common mode noise input to the T5.1 circuits. Because of these problems, the currently approved configuration hardware is life limited as follows; HPT-1/-2 blades - 1000 hours (not addressed by "LTF"); and HPT-1/-2 wheels - 2500 hours (not addressed by "LTF"). The cost and resultant operational readiness impact as a result of these relatively low life limits of the current configuration are inherently high.

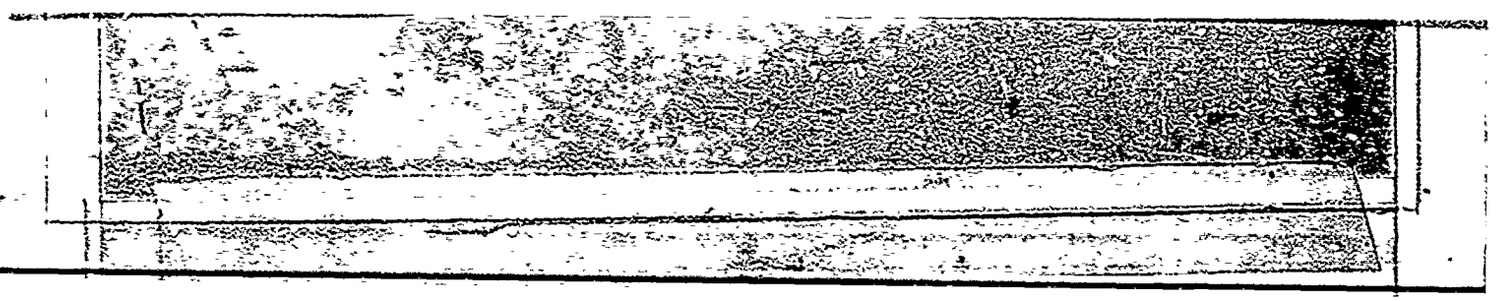
OSIP 16-81

Description/Justification (Cont'd):

This modification program addresses the above deficiencies with kits A through D. Kit A provides a three-lobe serration HPT-1 cast blade with a 2000-hour minimum airfoil life and an HPT-1 wheel with a 6000-hour life limit. Kit B provides a three-lobe serration air-cooled HPT-2 blade with a 2000-hour minimum life and an HPT-2 wheel with a 6000-hour life limit. It will also provide for the replacement of hardware considered to be very sensitive to handling damage which has been linked to several recent Fleet mishaps involving aircraft losses. Kit D provides for an Engine Monitoring System (EMS) which continuously defines engine health status, hot section component usage, and performance characteristics to ensure early detection of engine discrepancies and to improve maintenance effectiveness. Kit D also provides increased flight safety by pilot warning of engine vibration and "quiet" stall. (NOTE: Several Fleet aircraft have recently been lost due to low engine performance and "quiet" stall).

The improvements provided by this program combined with development efforts which began incorporation in April 1979 ("LTF") will result in a TF-41 engine with the capability for a 1000-hour refurbishment interval, a projected inherent premature removal rate of less than 2.0 per thousand hours, and a projected combined inherent premature removal rate of 4.0 per thousand hours. The new HELP kit improvement will increase the HP Turbine's tolerance to overtemperature effects due to stall. This modification program will extend the useful life of the high pressure hot section components thereby reducing inspection requirements and replacement parts costs. These improvements will provide additional turbine temperature capability. This capability can be used to maintain engine performance following prolonged operation by permitting depreciation recovery as required. The EMS will provide the engine component life usage tracking and performance degradation trend capabilities required by the CNO directed Navy-wide Engine Analytical Maintenance Program (EAMP). These capabilities coupled with the EMS ability to increase troubleshooting will improve aircraft availability, reduce unnecessary engine and component removals, decrease secondary material damage, increase logistics support effectiveness, and extend useful engine operational life. The incorporation of these improved hot section components with the cockpit warning feature of the EMS will significantly improve the A-7E flight safety record. The result of this total modification program will be a cost effective end item with improved reliability and combat readiness with significantly reduced logistics costs and increased safety.

Development Status: Kit A, B, and D development is complete. Kits A, B, and D are developed such that each kit can be incorporated as an individual entity.



OSIP 16-81

Project Financial Plan:

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$8,919		$13,308		$17,946		$17,674		$21,079
O&MN Install.				$454		$236		$431		$2,610
APN-6 Spares		$2,238		$2,350		$8,487		$860		$333

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5								$ 78,926
O&MN Install.		$3,037		$3,016		$2,309		12,093
APN-6 Spares								14,268
GRAND TOTAL								$105,287

Installation Data: Kits A and B will be incorporated during scheduled engine/HPT rotor repair at depots. Modified HPT rotors will be installed at depots and IMA's. Kit B will be incorporated during scheduled engine repair at the depots, during scheduled aircraft Standard Depot Level Maintenance (SDLM), and by the Naval Air Rework Facility (NARF) field mod team and by intermediate level maintenance activities.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Improvement of Fuel Quantity Gaging System (OSIP 9-82)

Models of Aircraft Affected: A-7E

Description/Justification:

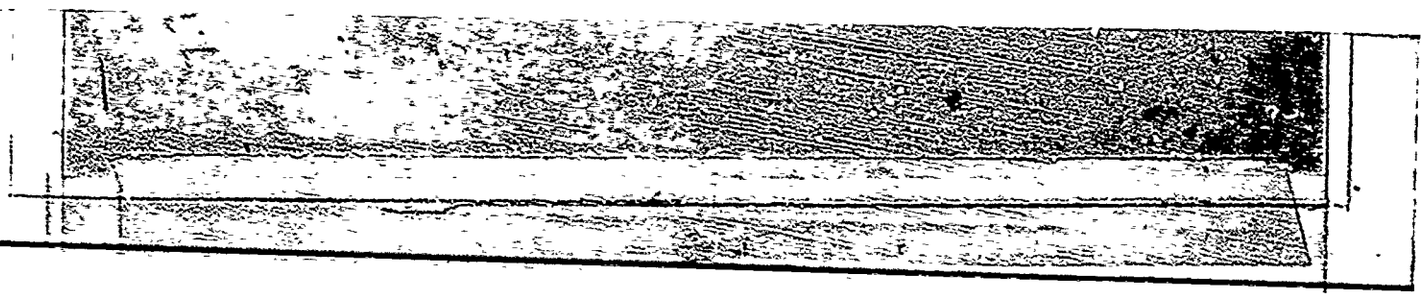
The 3M service data indicates that the fuel quantity indicator system wiring and connectors are the primary contributors to the reliability degradation of the A-7 fuel quantity gaging system. The proposed program will: (a) improve indicator by eliminating glass breakage, eliminate failures in adjustment section, and reduce requirement for system recalibration; (b) improve wiring by increasing abrasion resistance, providing greater flexibility, providing centralized test and fault isolation, and elimination of shield jumper terminations; and (c) improve electrical connectors by reducing corrosion, providing better moisture seals, shielded contacts, and improved coupling. This improvement will greatly enhance aircraft reliability through at least 1990 when they will be used by reserve squadrons. Contractor test will consist of ground testing and integration of all related systems. Navy test will consist of ground and flight test for verification.

Development Status: No development required. This modification utilizes existing state-of-the-art techniques. System development prototype began testing in September 1983.

Project Financial Plan:

	FY 1982		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$1,867	164	$9,177	100	$5,389					268	$16,433
O&MN Install.			(4)	$82	(91)	$2,054	(156)	$3,547	(17)	$323		6,006
APN-6 Spares		$8		$1,418								1,426
GRAND TOTAL												$23,865

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and contractor field teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APQ-126 Radar Set (OSIP 94-82)

Models of Aircraft Affected: A-7E/C, TA-7C

Description/Justification:

The APQ-126 radar is number 1 on the readiness improvement summary evaluation (RISE) report.

APQ-126 Update: The aluminum spur gear in the roll attitude gear assembly will be replaced with a steel gear of the same size. The currently used aluminum gear is susceptible to breakage due to material type, misalignment and mishandling. The azimuth dual rotary coupler, part of the antenna receiver AS-2272/APQ-126, will be replaced by a repairable sealed unit with increased reliability and better maintainability (expected mean time between failure (MTBF) four times greater than the old unit). A resistor and capacitor in the +200 VDC Power Supply, part of the Power Supply Programmer PP-6130/APQ-126(V), will be replaced to improve the reliability by reducing the vulnerability to excessive loads and improving its current limiting characteristics. Another improvement in the Power Supply Programmer is in the Scan Pulse Generator where two transistors which switch aircraft 26 VAC power will be replaced to reduce the vulnerability to spurious noise spikes from aircraft noise sources. The operational readiness (MTBF) of the radar will also increase with the use of a shroud for the protection of the potentiometers on the indicator Line Replaceable Unit (LRU) from damage during maintenance actions. The 3A10 subassembly of the antenna receiver will be changed to improve performance in several areas including improved map display, target resolution through beam sharpening enhancing navigation and bombing accuracies, side-lobe suppression allowing improved terrain following, and improved boresight certainty over frequency and power ranges of radar.

Development Status: APQ-126 system changes will utilize updated and present state-of-the-art techniques. No approval for full production (AFP) is required.

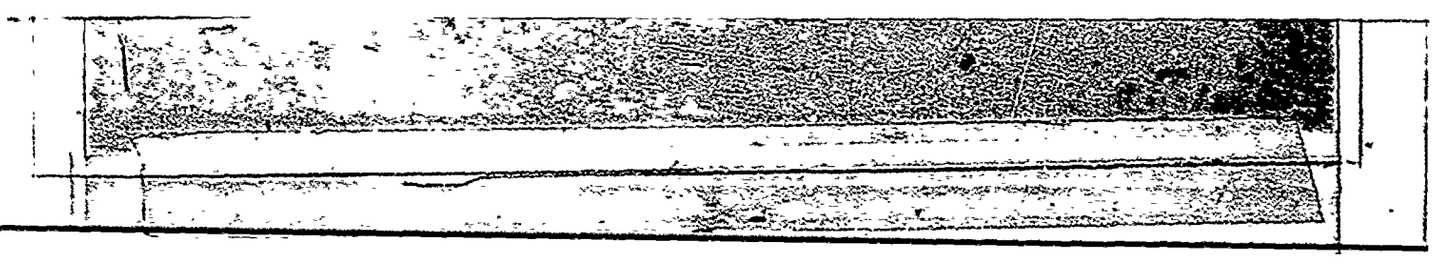
OSIP 94-82

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$569		$2,016		$1,713		$2,321			*420	$6,619
O&MN Install.					(100)	$80	(140)	$112	(180)	$144		336
APN-6 Spares		$172		$919		$1,015		$269				2,375
GRAND TOTAL												$9,330

*420 Radars.

Installation Data: Rework will be done at time of component repair at intermediate level. Two changes will be incorporated at depot level during repair. One change will be implemented only during maintenance actions on the indicator.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: TA-7C Re-engine with TF41 (OSIP 123-83)

Models of Aircraft Affected: TA-7C, EA-7L

Description/Justification:

Re-engine of 52 TA-7C aircraft with the TF-41 engine (replacing the TF-30 P408 engine) is necessitated by a foreign military requirement for TF-30 P408 engines. An operational and support improvement will be realized in out years with all active A-7 type/model/series powered by the TF-41. Operational training will be greatly enhanced by having the same engine in the trainer as in the A-7E aircraft. This modification will incorporate engine monitoring, inlet guide vane override and inconel bleed air ducts.

Development Status: Several series of two-seat A-7 aircraft are TF-41 powered including the A-7K, TA-7H, and YA-7E. No structural flight testing will be required. Carrier suitability flight testing, performance demonstration and prestart envelope verification are required and will commence in November 1984 at NATC. NATC testing will complete testing requirements that were started on previous model A-7 aircraft (A-7K, TA-7H and YA-7C).

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$4,071	51	$50,899		$4,704			52	$59,674
O&MN Contr. Install.			(1)	$326	(37)	$12,731	(14)	$10,165		23,222
APN-6				$1,499		$708				2,207
GRAND TOTAL										$85,103

Installation Data: Installation will be accomplished by a drive-in modification program at Vought.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ASN-90 Inertial Measurement Set Update (OSIP 52-84)

Models of Aircraft Affected: A-7E, TA-7C, EA-7L

Description/Justification:

The ASN-90 inertial measurement set is number 1 on the readiness improvement summary evaluation (RISE) report. The PP6141 adapter/power supply unit is the major degrader to reliability. Within the power supply segment, cards #1, 3, 4, and 5 will be replaced by redesigned cards 1 and 4. Redesign will improve short circuit of components, and will utilize state-of-the-art technology to improve reliability.

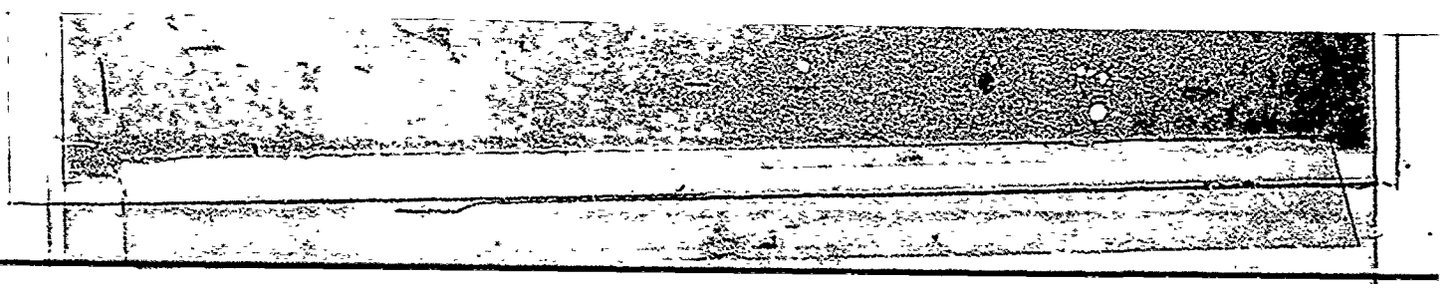
Development Status: The PP6141 adapter/power supply is being redesigned and tested via the AERMIP program RDT&E P.E. No. 25633A.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$796	167*	$2,713	167*	$1,410	334*	$4,919
O&MN Install. ("I" Level)				-0-				-0-
APN-6 Spares				$545		$274		819
GRAND TOTAL								$5,738

*Component kits.

Installation Data: Installation will be accomplished at the Intermediate level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-162 Countermeasures Set (OSIP 141-84)

Models of Aircraft Affected: A-7E

Description/Justification:

This OSIP provides for the AN/ALQ-162 installation provisions. The AN/ALQ-162 in FY 1985 to subsequent GFE is contained in the AN/ALQ-162 OSIP 113-85.

The AN/ALQ-162 provides complementary CW jamming to the operational AN/ALQ-126B pulse jammer installed in tactical aircraft. The AN/ALQ-162 will accept threat handoff data from the AN/APR-43 Radar Warning Receiver and utilize a common transmit/receive antenna integral to the AN/APR-43 antenna assembly. The AN/ALQ-162 also provides a stand alone capability allowing for defensive electronic countermeasures in event of AN/APR-43 failure. The AN/ALQ-162 design is fully reprogrammable to handle future threat parameter changes. The AN/ALQ-162 provides a significant increase in survivability for Navy Tactical aircraft against radar directed air defense weapons.

Development Status: Northrop Defense Systems Division is under contract and provided engineering development models in the second quarter of FY 1981 for test and evaluation. TEMP No. 593 supports Navy test and evaluation. The RDT and TECHEVAL are complete. OPEVAL commenced in the first quarter of FY 1984. Approval for limited production (ALP) is expected in the third quarter of FY 1984. RDT&E,N Program Element Number 64224N applies.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$2,000	76	$8,324	72	$5,784	71	$4,866		
O&MN Install.					(36)	$398	(70)	$912	(76)	$841
APN-6 Spares				$763		$606		$468		

OSIP 141-84

Project Financial Plan (Cont'd):

	FY 1989		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			223	$20,934
O&MN Install.	(41)	$454		2,605
APN-6 Spares				1,837
GRAND TOTAL				$25,376

Installation Data: Installation of the airframe change kit will be accomplished during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: I²R MAVERICK Airframe Provisions (OSIF 38-85)

Models of Aircraft Affected: A-7E (FLIR Configured)

Description/Justification:

The MAVERICK missile is an air-to-ground missile whose primary mission is to provide a high probability of kills against surface targets during war-at-sea strikes and small hard targets during close air support and interdiction strikes. The MAVERICK missile will provide greater stand-off range for enemy engagement than with present conventional weapon capability.

This modification will also have application for other stand-off weapons.

Retrofit of MAVERICK capability into FLIR configured A7E aircraft will require interface with the TC-2A computer, multiple munitions wiring (MMW), head-up display (HUD), APQ-126 radar, and WALLEYE wiring and with stiff stick cockpit controller. In addition, a modification to the Armament Station Control Unit (ASCU) is required for control of the MAVERICK Missile. Single rail launcher (LAU-117) will also be procured in support of the MAVERICK Missile.

Development Status: Three DTE launches from the A7E were done in June/July/Nov 1983. A7E/MAVERICK/OPEVAL will begin in June 1984 with approval for full production (AFP) planned for November 1984.

OSIP 38-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	24	$16,300	96	$20,000	56	$11,100			176	$47,400
O&MN Install.			(24)	$134	(70)	$459	(82)	$553		1,146
APN-6 Spares		$1,481		$2,312		$346				4,139
GRAND TOTAL										$52,685

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM) and contractor field mod team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Model TF41-A-2B/402B Engine Inlet Guide Vane (IGV) Redundant Control System (OSIP 62-85)

Models of Aircraft Affected: A-7E

Description/Justification:

A non-recoverable engine compressor stall is one of the most serious malfunctions in any single engine aircraft. In A-7E aircraft, failure of the Inlet Guide Vane (IGV) control system (which includes the hydromechanical governor (HMG), inlet air temperature sensor (T, phial) and the Airflow Control Regulator (AFCR)) has been a major cause of non-recoverable compressor stalls. Two aircraft losses in the USN and one in the USAF were attributed directly to the failure of the HMG. In addition, four recent A-7E losses (Mar-Apr 82) were determined to be caused by failure of the IGV control system. In the IGV control system, there are 10 separate single point failure modes, any one of which can cause a nonrecoverable compressor stall. An interim safety change is being incorporated to address these failure modes (PPC 128-IGV override control, AFC 419-Pilot actuated override switch). This scheme would allow clearing of a stall and stall-free operation of the engine at greatly reduced power. It will not however, allow full range operation to complete a mission or provide carrier landing capability. A fully operational electronic back-up IGV control system as proposed by this program with its independent speed and temperature senses will allow full range operation with mission completion, carrier landings and engine restarts. In addition its faster temperature response will prevent stalls during five pullouts and its IGV position feedback feature will elminate schedule hysterisis between throttle advances and retards. It is expected that the electronic IGV redundant control system will eventually become the primary mode of control with the current hydromechanical control as backup. This new IGV back-up control is part of the TF41 stall reduction/recovery program.

Development Status: The redundant IGV control system is being developed under TF41 Component Improvement Program (CIP) Engineering Program Description (EPD) 10.23.7. Bench qualification and Preliminary Flight Rating Test (PFRT) of the hardware will be completed by June 1984. Flight test will be complete by late 1984, with associated airframe EMI testing complete by November 1984. ECP submittal is scheduled for January 1985 with approval by April 1985. Aircraft wiring and a cockpit switch now being installed by AFC 419 will also accommodate the redundant control system.

OSIP 62-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$2,216	240	$5,772					242*	$7,988
O&MN Install.			(2)	$2	(120)	$90	(120)	$90		182
APN-6 Spares		$45		$628		$640				1,313
GRAND TOTAL										$9,483

* Quantity represents engines.

Installation Data: The kits will be installed at the depot (Oklahoma City) and the Naval Air Rework Facilities (NARF's) (Jacksonville and Alameda) during normal engine repair.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: A-7 IMER/ITER Pylon Cable (Harness Improvement Project) (OSIP 25-86)

Models of Aircraft Affected: A-7C, A-7E, TA-7C

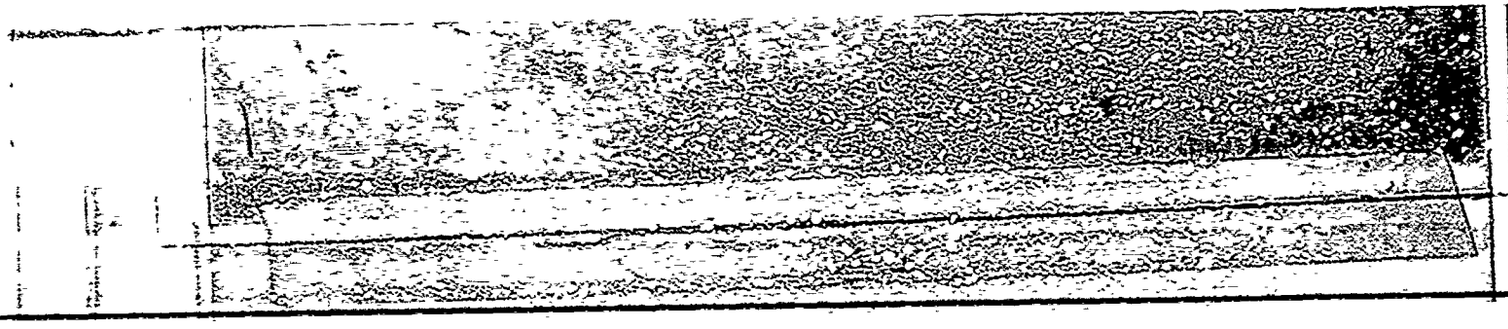
Description/Justification:

Single, repairable, cable is required to connect improved MER/TER (IMER/ITER) to the pylon electrical connector. Existing MER/TER cable/adapter sets (which have demonstrated poor reliability and maintainability) are incompatible with the IMER/ITER.

When IMER/ITER is mounted on each station:

Old pylon to store master cable is removed from pylon connector.
Old adapter bails are removed from the bail retention rod.
New pylon-to-IMER/ITER cable is connected to pylon connector.
Bail is attached to the bail retention bar.
Cable is connected to the IMER/ITER.

Development Status: IMER/ITER cables have been designed and drawings are complete. Other cables of the Harness Improvement Project have been prototyped, tested, and fleet tested on both coasts. IMER/ITER cables have been prototyped and are flying at NADC with racks.



OSIP 25-86

Project Financial Plan:

	FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	180	$1,855	188	$1,646	368*	$3,501
O&M Install. "O" Level		-0-				-0-
APN-6 Spares		$174		$190		364
GRAND TOTAL						$3,865

* Quantity represents cable sets.

Installation Data: "O" Level is normal stores change evolution.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Structural Integrity (OSIP 16-84)

Models of Aircraft Affected: AV-8A/AV-8C

Description/Justification:

This aircraft structural enhancement program involves modifications to the aircraft at fatigue critical locations. Laboratory full-scale as well as element spectrum fatigue testing, together with fatigue analyses indicate that the onset of structural damage due to service usage will occur at aproximately 1,600 to 2,000 flight hours. Based on the Aircraft Structural Appraisal of Fatigue Effects (SAFE) Program, dated 15 July 1981 (which includes AV-8A/C Fleet information up to the end of April 1981) the Fleet average was 1,390 hours with the high time aircraft at 2,040 hours.

Thus, it is apparent that action is required to develop repairs as these aircraft accumulate flight time. In fact, frame 43 web fatigue damage has already been discovered and repaired at Naval Air Rework Facility (NARF), Cherry Point on five aircraft inducted through their second Standard Depot Level Maintenance (SDLM) (at approximately 1,800 flight hours). The repair scheme used was a more comprehensive version of a British "band-aid" type of repair. The possibility exists that fatigue damage left unrepaired in any of the critical areas could eventually lead to a safety of flight situation. After incorporation on the aircraft, the modifications will have a safe life of 2,500 flight hours total.

Development Status: The design and modification work has been accomplished by the contractor; however, a review and update will be made of the existing modification designs to include currently available information. The design update shall include fatigue, strength and structural dynamics analysis of the modifications. Tooling will be designed and fabricated.

OSIP 16-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	?	$813	38	$2,182					40	$2,995
O&MN Install.			(2)	$188	(20)	$1,899	(18)	$1,709		3,796
APN-6 Spares				176						176
GRAND TOTAL										$6,967

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM) and a drive-in mod program.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Digital Engine Control System (DECS) (OSIP 88-85)

Models of Aircraft Affected: AV-8B

Description/Justification:

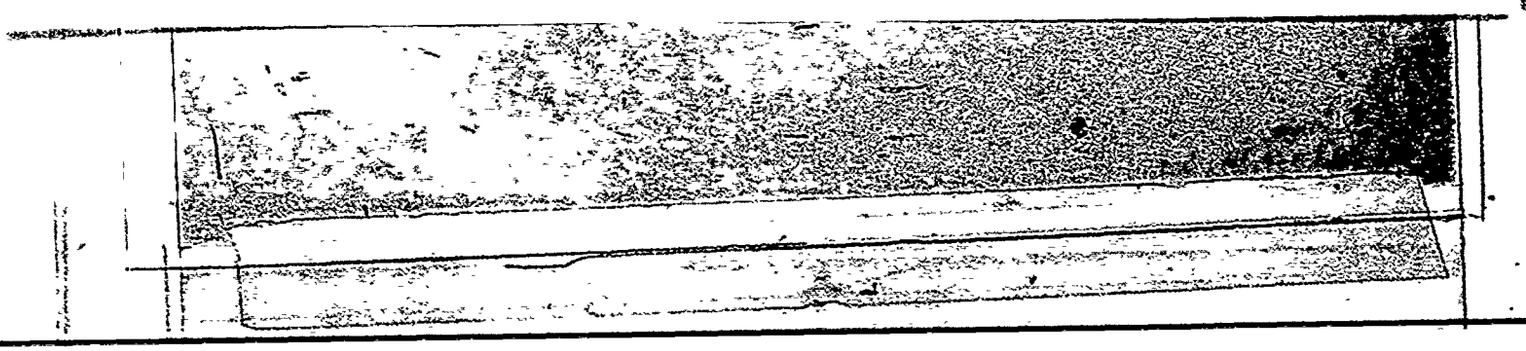
AV-8B pilot production aircraft shall be modified by replacing the hydro-mechanical fuel control unit with a Digital Engine Control Unit (DECU). Structural and system changes required to accommodate the DECU shall be accomplished. The Onboard Oxygen Generating System (OBOGS) shutoff valve shall be relocated if required. Two redundant total temperature sensors shall be installed to provide the DECU with reliable total temperature signals. Electrical wiring shall be modified to provide power, control and sensor signals to the DECU. The fuel system and engine controls shall be modified as required. DECU related switches, indicators (caution/warning lights) and controls shall be added to the cockpit. Additional aircraft beyond pilot production will not require modification. However, up to 80 engines from limited and full production lots will require mods. This program covers DECU retrofit into AV-8B pilot production aircraft and assumes that development and production incorporation are provided for elsewhere.

Development Status: Undergoing full scale development in the UK as part of the AV-8B/GR-5 arrangement.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	26	$8,147	25	$5,799		$253			51	$14,199
O&MN Install.					(23)	$677	(28)	$823		1,500
O&MN Training				$75						75
APN-6 Spares		$1,734		$654						2,388
GRAND TOTAL										$18,162

Installation Data: Installation will be accomplished by contractor field teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Engine Monitoring System (EMS) (OSIP 89-85)

Models of Aircraft Affected: AV-8B

Description/Justification:

The Engine Monitoring System (EMS) is comprised of the components and interfaces described below:

ENGINE MONITORING UNIT (EMU) - The EMU is the central processing unit of the EMS which uses engine and airframe inputs and outputs usage and condition status including engine limits which have been exceeded. A Light Emitting Diode (LED) display will be provided that is capable of outputting data. This display and any BITE indicators will be located on the front of the equipment as well as a reset facility and reset indicator.

The EMU (as proposed) is to be installed in the nose cone such that the LED display is accessible for reading, when needed (however, not necessarily on a daily or turn-around basis).

QUICK ACCESS RECORDER (QAR) - The QAR is a bulk memory device interfacing with the EMU.

DATA RETRIEVAL UNIT CONNECTOR - A data retrieval unit connector shall be provided near the Engine Monitoring Unit.

MULTI-PURPOSE DISPLAY (MPD) - AV-8B data display will be accomplished using the MPD which is already a part of the AV-8B crew station configuration.

CREW STATION MODIFICATIONS - Provisions for a vibration overlimit warning and a pilot actuated event switch will be incorporated.

DIGITAL ENGINE CONTROL UNIT (DECU) INTERFACE - An interface will be provided between the EMU and DECU via a serial data bus.

OSIP 89-85

Description/Justification (Cont'd):

MULTIPLEX BUS INTERFACE - An interface will be provided between the AV-8B Mux Bus and the EMU to provide both input and output capability in the primary (Mission Computer) mode. This capability will not be included in the backup (Display Processor) mode.

THROTTLE POSITION - A dedicated throttle sensor and input to the EMU shall be provided.

Structural and electrical provisions shall be installed. Software shall be modified as required. Design, development and test of provisions for production incorporation shall be completed prior to or currently with this retrofit effort.

Development Status: Source selection is in process. FSD will be conducted IAW AV-8B/GR-5 arrangement and the Component Improvement Program.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	9	$4,201	24	$3,671		$428			33	$ 8,300
O&MN Install.					(9)	$709	(24)	$1,891		2,600
O&MN Training				$100						100
APN-6 Spares		$617		$696		$61				1,374
GRAND TOTAL										$12,374

Installation Data: Installation of modification to be accomplished by the prime contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ARC-159 Radio (OSIP 60-82)

Models of Aircraft Affected: F-4S

Description/Justification:

The F-4S currently has only one UHF communications transceiver (RT-793) with one auxiliary receiver (AN/ARR-69). Both pieces contain early 1950's technology and are currently exhibiting an unsatisfactory mean flight hour between failure (MFHBF). This program proposes to install the AN/ARC-159 system as a dual system (backup and prime) in the F-4S. A backup ARC-159 is currently being installed in the F-4N and a dual system is being installed in the RF-4B.

Development Status: The AN/ARC-159 radio is approved for full production.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$2,186	70	$4,917	74	$4,991	53	$1,905			209	$13,999
O&MN Install.			(1)	$6	(32)	$249	(85)	$611	(91)	$607		1,473
APN-6 Spares				$160								160
GRAND TOTAL												$15,632

Installation Data: Installation will be accomplished at the Naval Air Rework Facility (NARF) during SLEP, Standard Depot Level Maintenance (SDLM), and by field mod teams (FMT).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/AWG-10A Improved Simulated Doppler Signal (OSIP 21-84)

Models of Aircraft Affected: F-4S

Description/Justification:

The simulated doppler signal is generated by the AN/AWG-10A radar when tracking a target. This signal is used to preposition the AIM-7 missile speedgate prior to launch. Positioning of the missile speedgate is critical. Accuracy is required for the AIM-7 missile to lock onto the same target the radar is tracking before and after launch.

One year of telemetry data gathered from fleet missile exercises reveals an excessive number (87 percent) of mispositioned speedgates. Most of these missiles launched with mispositioned speedgates have gone ballistic vice guiding to the target/drone. This change to the AWG-10A radar will provide a highly reliable/accurate simulated doppler signal which will significantly reduce the probability of mispositioned speedgates.

Preliminary laboratory and instrumented flight tests revealed that the simulated doppler signal circuits consistently generate a signal which is high in frequency. In addition to the high output from the radar, engineering data gathered aboard the USS MIDWAY has revealed a poor signal distribution system in the F-4S aircraft. The distribution system degrades and becomes susceptible to electromagnetic interference (EMI). The EMI adds to the doppler signal and mispositions the missile speedgate.

This program will replace the radar signal generating circuits with state-of-the-art circuitry and modify the distribution system to be less susceptible to EMI.

Development Status: Contractor laboratory tests were performed in FY 1980. Contractor/Navy instrumented flight tests were performed in FY 1981. Approval for full production (AFP) is not required.

OSIP 21-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,440	121	$1,795	93	$1,149	215	$4,384
O&MN Install. "O" Level				-0-				-0-
O&MN Training				$32				32
APN-6 Spares				$209		$213		422
GRAND TOTAL								$4,838

Installation Data: Installation will be accomplished at the Organizational (Fleet) level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APQ-99 Technical Obsolescence Update Program (OSIP 41-84)

Models of Aircraft Affected: RF-4B

Description/Justification:

The AN/APQ-99 Forward Looking Radar (FLR) set was based on electronic technology circa 1961 and developed for installation in the RF-4B aircraft. Since the introduction of the RF-4B aircraft into the Navy inventory in 1965, the FLR has undergone increased capability improvements and updates to keep it operationally current; however, most of the electronic components remain in 1960's technology. Over the years, component degradation and obsolescence have impacted FLR maintainability resulting in the system constantly being ranked the number one contributing factor to overall RF-4B downtime as indicated by Navy Maintenance data. Several key components in the FLR set have become unobtainable due to companies no longer in business or discontinued production of obsolescent components. In order to prevent the RF-4B aircraft from becoming more adversely impacted due to FLR component degradation/obsolescence and since the RF-4B will remain in the operational inventory well into the 1990's, a formal update program must be established to reverse the increasing aircraft downtime. Primary redesign efforts will concentrate on replacing obsolescent or discontinued components of the AN/APQ-99 FLR system.

Development Status: The AN/APQ-99 is currently in service use. The contractor has submitted several engineering change proposals (ECP's) in an attempt to preclude obsolescence. The basic design approach is considered satisfactory. Navy Approval for full production (AFP) is not required.

OSIP 41-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$3,030	14	$2,000			16	$5,030
O&MN Install.			(2)	$43	(14)	$162		205
O&MN Training		$50		$262				312
APN-6 Spares		$102		$227				329
GRAND TOTAL								$5,876

Installation Data: Installation is to be accomplished by contractor field mod team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-162 Countermeasures Set (OSIP 128-84)

Models of Aircraft Affected: RF-4B

Description/Justification:

This OSIP provides for the AN/ALQ-162 installation provisions. The AN/ALQ-162 GFE in FY 1985 and subsequent is contained in the AN/ALQ-162 OSIP 113-85.

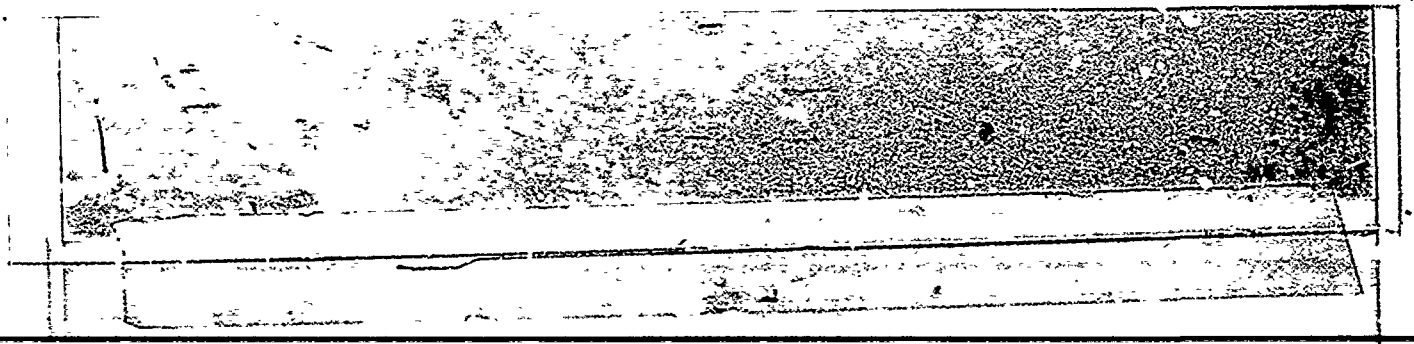
The AN/ALQ-162 provides complementary CW jamming to the operational AN/ALQ-126b pulse jammer installed in tactical aircraft. The AN/ALQ-162 will accept threat handoff data from the AN/APR-43 Radar Warning Receiver and utilize a common transmit/receive antenna integral to the AN/APR-43 antenna assembly. The AN/ALQ-162 also provides a stand alone capability allowing for defensive electronic countermeasures in event of AN/APR-43 failure. The AN/ALQ-162 design is fully reprogrammable to handle future threat parameter changes. The AN/ALQ-162 provides a significant increase in survivability for Navy tactical aircraft against radar directed air defense weapons.

Development Status: Northrop Defense Systems Division is under contract and provided engineering development models in the second quarter of FY 1981 for test and evaluation. TEMP No.593 supports Navy test and evaluation. The RDT and TECHEVAL are complete. OPEVAL commenced in the first quarter of FY 1984. Approval for limited production (ALP) is expected in the third quarter of FY 1984. RDT&E,N Program Element Number 64224N applies.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
AN/ALQ-162	1	$865			13	$1,121	10	$661			24	$2,647
O&MN Install.			(1)	$24			(13)	$325	(10)	$250		599
APN-6 Spares		$69		-0-		$78						147
GRAND TOTAL												$3,393

Installation Data: Installation of the airframe change kit will be accomplished during Standard Depot Level Maintenance (SDLM) and by Field Teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APR-43 (OSIP 143-84)

Models of Aircraft Affected: RF-4

Description/Justification:

The AN/APR-43 is a radar/missile warning receiver which provides mission essential warning and direction finding for CW threat systems. The APR-43 augments and is fully integrated with the AN/ALR-45F. The system is a form factor replacement for the AN/ALR-50, and as such keeps airframe changes to a minimum.

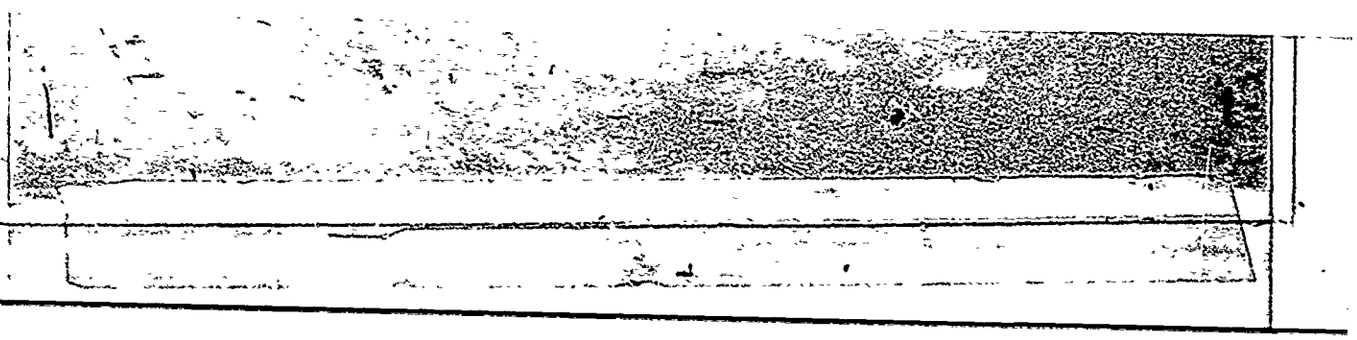
Development Status: TECHEVAL and OPEVAL have been completed in the A-7E. Approval for Limited Production (ALP) for 57 units was granted in October 1983. FOT&E is ongoing and will continue through FY 1984.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$2,950			13	$438	10	$357			24	$3,745
O&MN Install.			(1)	$31			(13)	$408	(10)	$313		752
APN-6 Spares		$53		-0-		$43		$35				131
GRAND TOTAL												$4,628

NOTE: See OSIP 113-85 for GFE procurements beginning with FY 1985 and subsequent years.

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and by Field Teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Follow-On Structural Fatigue (OSIP 39-85)

Models of Aircraft Affected: RF-4B

Description/Justification:

The RF-4B conversion program incorporated structural improvements into the airframe to permit extension of the service life an additional 8 years. Due to projected shortfalls in reconnaissance aircraft in the 1980's the RF-4B will be the prime reconnaissance aircraft for the Navy and Marine Corps for longer than originally projected. Initial structural improvements will consist of fixing known problem areas which have been identified with follow-on engineering change proposals (ECP's) generated in a timely manner based on the F-4 full-scale fatigue test.

Development Status: Current full-scale fatigue testing has resulted in the decision to incorporate an improved center line splice and fatigue improvements to the outer wing panels. Additional requirements will be identified by the full-scale fatigue test teardown analysis. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,895	13	$1,186			14	$3,081
O&MN Install.			(1)	$44	(13)	$567		611
APN-6 Spares		$17		$138				155
GRAND TOTAL								$3,847

Installation Data: Installation is to be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and by drive-in mod program.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: KS-153 Camera Provisions (OSIP 92-85)

Models of Aircraft Affected: RF-4B

Description/Justification:

The proposed modifications contained in this program provide for incorporating state-of-the-art cameras that are being procured in the APN-7 appropriation. The KS-153 semiautomatic loading still picture camera was designed and developed for compatibility with RF-4 aircraft. This camera will provide superior, high speed, high resolution and wide area coverage for the Navy/Marine reconnaissance community. The current proximity to our shores of potentially hostile/unfriendly forces emphasizes the critical requirement for intelligence level photographic imagery throughout the flight spectrum of the RF-4B reconnaissance aircraft, in addition to a long range standoff capability. These qualities (not available in the present RF-4B camera suite) are inherent in the KS-153 camera. Additionally, due to their state-of-the-art design, the camera is infrared film compatible and contains a continuous built-in-test capability which, through incorporation of the proposed modifications, will provide the aircrew real time monitoring of the operational status of each camera. Of considerable importance as well, is the time required to obtain usable imagery for photo interpreters after aircraft landing. This will be substantially reduced due to the cross track scan capability of the camera. This capability also reduces the amount of film required per flyover, thereby increasing the number of flyovers available per mission.

Development Status: The new camera mounts will be similar to the mounts already installed in the aircraft. No new technology will be utilized during development of the wiring interconnection/interface components. Approval for full production (AFP) is not required.

OSIP 92-8[illegible]

Project F[illegible]ncial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	14	$1,969			14	$1,969
O&MN Install.			(14)	$56		56
O&MN Training		$75				75
APN-6 Spares		$197				197
GRAND TOTAL						$2,297

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM) and by field mod team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: PHOENIX AN/AWG-9, Computer Expanded Memory (OSIP 25-81)

Models of Aircraft Affected: F-14A

Description/Justification:

The memory of the AWG-9 CDC computer will be expanded from 32K to 64K computer memory locations. The expanded memory will consist of four AN/AYK-14(V) memory modules. These modules are also used in the Navy standard computer and are core type destructive read-out (DRO) memories. The present nondestructive read-out (NDRO) memory (452 unit) and DRO memory will be eliminated. This will reduce the weight, volume and required cooling for the AWG-9 computer. The present tactical software program can be used with either the present or expanded computer memories and the units will be interchangeable in the F-14 aircraft.

Development Status: The AN/AYK-14(V) memory modules are completely developed. This change was incorporated in Hughes production of the AWG-9 Radar Systems.

Project Financial Plan:

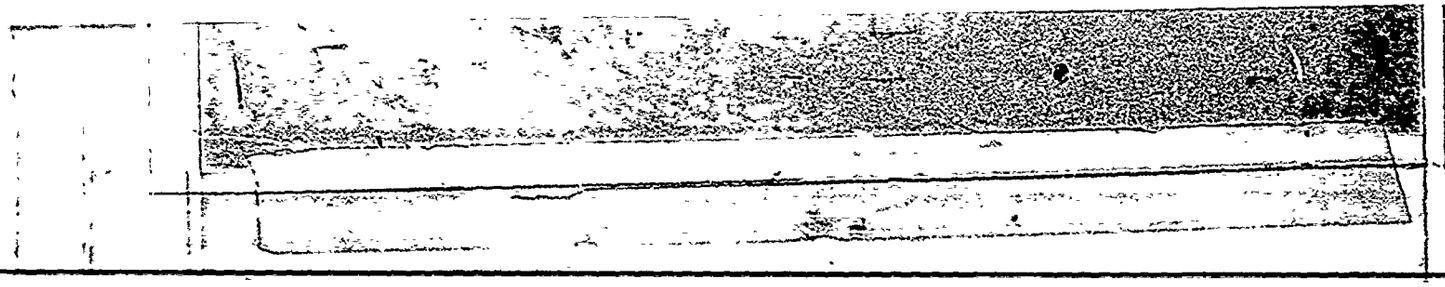
	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	53	$7,614	70	$9,882	69	$9,599	73	$11,500	73	$12,220
O&MN Install.				$61	(53)	$1,431	(70)	$1,889	(69)	$1,863
APN-6 Spares		$1,702		$3,356		$2,215		$953		-0-

OSIP 25-81

Project Financial Plan (Cont'd):

	FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					338	$50,815
O&MN Install.	(73)	$1,970	(73)	$1,070		9,184
APN-6 Spares						8.226
GRAND TOTAL						$68,225

Installation Data: Installation will be accomplished by contractor field mod teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: TF30-P-414A Package (OSIP 15-82)

Models of Aircraft Affected: F-14A

Description/Justification:

This program consists of 25 separate engine improvements and associated aircraft changes required to ensure long term reliability, supportability and safety of the TF30 in the F-14 aircraft. The improvements provide significant increases in component low cycle fatigue life, engine stall margin and overall durability. The retrofit kit procurement provides the only source of hardware to replace components that reach currently imposed low cycle fatigue life limits. Thus, a specific procurement schedule is required to ensure hardware availability for those replacements and to avoid the negative effect of aircraft with bare firewalls if the hardware were not available. The incorporation of the 25 changes will result in a new model of the TF30 engine - TF30-P-414A.

Development Status: Component testing commenced in June 1979. One engine completed 2400 hours of Accelerated Simulated Mission Endurance Testing (ASMET) in January 1981. Production effectivity will commence in aircraft #462.

OSIP 15-82

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	126	$57,245	217	$99,366	224	$109,464	240	$125,695	200	$111,846
O&MN Install.			(110)	$12,837	(232)	$27,379	(224)	$26,623	(240)	$28,480
APN-6 Spares		$3,559		$6,719		$4,751		$3,026		$3,609

	FY 1987		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			1,007	$503,616
O&MN Install.	(201)	$23,530		118,849
APN-6 Spares				21,664
GRAND TOTAL				$644,129

Note: Quantity represents engines to be modified.

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM) and by field teams. Engine installation O&MN funding includes rework costs.

MODIFICATION OF AIRCRAFT
FISCAL YEAR FY 1985

Appropriation: APN - Activity 5

Modification Title and No.: Upgrade Wiring and Wiring Components (OSIP 17-82)

Models of Aircraft Affected: F-14A

Description/Justification:

Wire used in the early F-14 aircraft is approximately 85 percent Poly-insulated with the remaining amount of wire split between Teflon and Kapton. In the Fleet both the Poly-X and Teflon outer insulations have been found to deteriorate. The deterioration rate of the insulation is accelerated by water and washing solvents which cause embrittlement and cracking, allowing water to induce cross-talk between wires (shorts). In production, Poly-X wire was replaced by Kapton wire. In retrofit, Spec-55 type wire is recommended to replace selected wires/harnesses. Under OSIP 38-80, the most susceptible wire harnesses in the wheel well and wings are now being replaced. Further investigation by a Grumman/Navy team has found that due to deterioration, other interior wire harnesses and individual wires also require replacement. The investigation further recommended installing additional grounding brackets, replacing certain connectors in specific areas which are most susceptible to corrosion, and installing additional harness supports to prevent chafing. These necessary changes are common to all F-14 aircraft. This "retrofit only" engineering change proposal (ECP) has been requested from the Naval Air Rework Facility, (NARF) Norfolk to correct these specific problem areas and is being processed in NAVAIR. This ECP will also provide for a complete wiring continuity and integrity test by the DITMCO (Drive-In Theater Manufacturing Company) tester.

Development Status: The wire (Spec-55 type wire), connectors, harness supports and other items required for these retrofit kits are all available from qualified sources. No further development or testing is required other than routine kit design/fabrication. Production effectivity is aircraft #510.

OSIP 17-82

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$10	26	$588	24	$336	101	$1,499	106	$1,666	108	$1,797
O&MN Install.							(2)	$63	(74)	$2,325	(105)	$3,300
APN-6 Spares						$40		$102				

	FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	82	$1,444					447	$ 7,340
O&MN Install.	(106)	$3,331	(109)	$3,425	(51)	$1,603		14,047
APN-6 Spares								142
GRAND TOTAL								$21,529

Installation Data: Installation will be accomplished by the Naval Air Rework Facility's (NARF's).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Television Camera Sight (TCS) (OSIP 62-82)

Models of Aircraft Affected: F-14A

Description/Justification:

The television camera sight (TCS) will provide the pilot and radar intercept officer (RIO) of an F-14A the ability to visually identify airborne targets at long stand-off ranges during day clear weather conditions. The TCS significantly enhances the F-14A weapon systems effectiveness and survivability whenever operational conditions dictate positive target ID prior to attack.

Development Status: Approval for service use was granted in January 1981. Production incorporation commenced with aircraft #465.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	66	$5,610	84	$15,963	130	$16,325	118	$17,367	*	$7,966	398	$63,231
O&MN Install.			(16)	$416	(128)	$4,607	(121)	$4,074	(133)	$4,547		13,644
APN-6 Spares		$545		$2,826		$111		$113				3,595
GRAND TOTAL												$80,470

*Cameras only.

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Structural Fatigue Modification (OSIP 115-82)

Models of Aircraft Affected: F-14A

Description/Justification:

This is an omnibus structural modification package containing fixes for the areas found to be deficient during the #98 fatigue tests and the Main Landing Gear (MLG) piston fatigue tests.

F.S. 569 Bulkhead - During the 4000 hour inspection on the aircraft #98 fatigue test article and subsequent inspection of aircraft #105 at Standard Depot Level Maintenance (SDLM), cracks were discovered in the bulkhead centerbody flange radius on both the left and the right hand sides. ECP 1116 (Correction of Deficiency) will modify the bulkhead nacelle to centerbody flange by the addition of angles and shims in production and retrofit aircraft to eliminate the possibility of further cracking in the F.S. 569 area. During the inspection made after failure of the 533 bulkhead, cracks were found in the nacelle area at F.S. 569. ECP-1125 will add interference fit fasteners in this area to eliminate the possibility of cracking in fleet aircraft.

F.S. 533 Bulkhead - During fatigue tests on aircraft #98, the fuselage station 533 bulkhead failed at 4,584 spectrum hours. ECP 1118 (Correction of Deficiency) will provide structural modifications of various fuselage stations (F.S. 533 Breather Joint, F.S. 345 B. L. 26 Skin Strap, F.S. 569 Forward Fixed Cowl Shim, F.S. 539 and F.S. 545 Ring Frames) to improve fatigue life in production and retrofit aircraft. ECP 1123 (Correction of Deficiency/Operational Improvement) will provide for production and retrofit incorporation of interference fit fasteners to the right and left hand side of the F.S. 533 bulkhead and new door stop angles and plates to span F.S. 533.75.

MLG Torque Arm Pins - A failure of the lower torque arm pin occurred at 8,944 landings during contractor conducted main landing gear piston fatigue tests. Further investigation revealed that both upper and lower pins were cracked. The problem was traced to an undercut radius at the head of the pin. ECP 1109 (Correction of Deficiency) will replace the present upper and lower torque arm pins on the MLG with modified pins.

Development Status: Grumman Aerospace Corporation aircraft #98 fatigue tests and MLG piston fatigue tests provided failure data. No approval for full production (AFP) is required.

OSIP 115-82

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$2,709		$4,577				$4,984		$3,746		$160
O&MN Install.				$5,219		$6,733		$5,647		$6,882		$6,669
APN-6 Spares				$12				-0-				

	FY 1988		TOTAL	
	Qty	Cost	Qty	Cost
APN-5				$16,176
O&MN Install.		$635		31,785
APN-6 Spares				12
GRAND TOTAL				$47,973

Installation Data: Installation will be accomplished at Organizational and Depot levels.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Structural Improvements (OSIP 152-83)

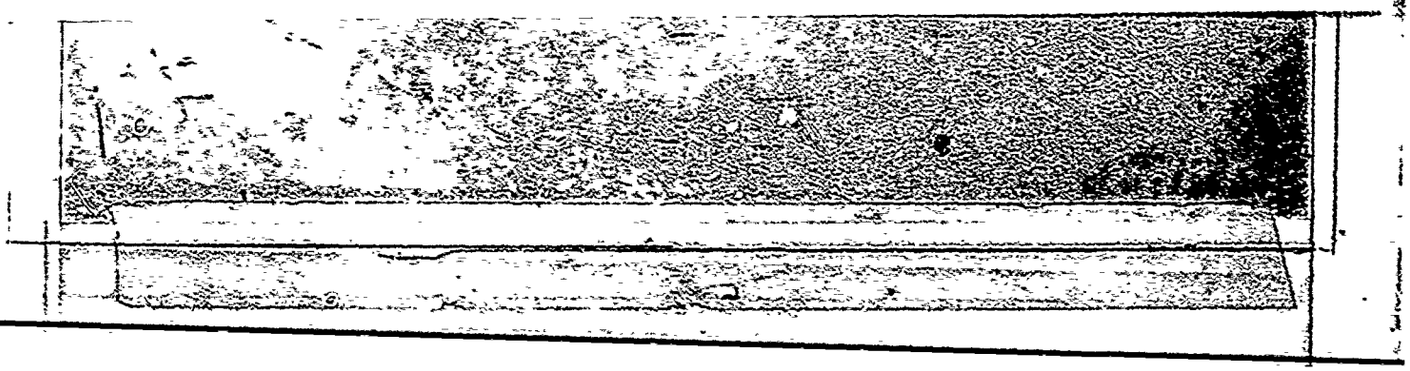
Models of Aircraft Affected: F-14A

Description/Justification:

A full scale fatigue test is presently being conducted with F-14 shop number 98. 6,000 test hours have been completed. Six required structural engineering change proposals (ECP's) were identical in the first 4,600 hours of testing and were funded under OSIP 115-82. Fifteen additional modifications have been identified to date and are being grouped into four additional ECP's to be installed on fleet aircraft at or before 3,000 flight hours. The following modifications will be installed under this OSIP:

Replace wing attachment 'Y' fitting
Replace engine attachment stub duct
Reinforce the Sta 569 nacelle inboard flange
Install redesigned fittings in the upper and lower diverter area
Install redesigned upper sponson panel
Reinforce the centerline trough web
Reinforce bulkhead and support structure at F.S. 395
Reinforce upper and lower deck skins
Reinforce nacelle assembly at F.S. 533
Modify bushing fitting for the wing attachment 'Y' fitting
Install redesigned lower longeron side beam
Install redesigned wheel well support in the inlet duct assembly
Modify longeron at F.S. 569
Reinforce longitudinal flight control support bracket
Install interference fit fasteners in the vertical fin assembly

Development Status: Complete.



OSIP 152-83

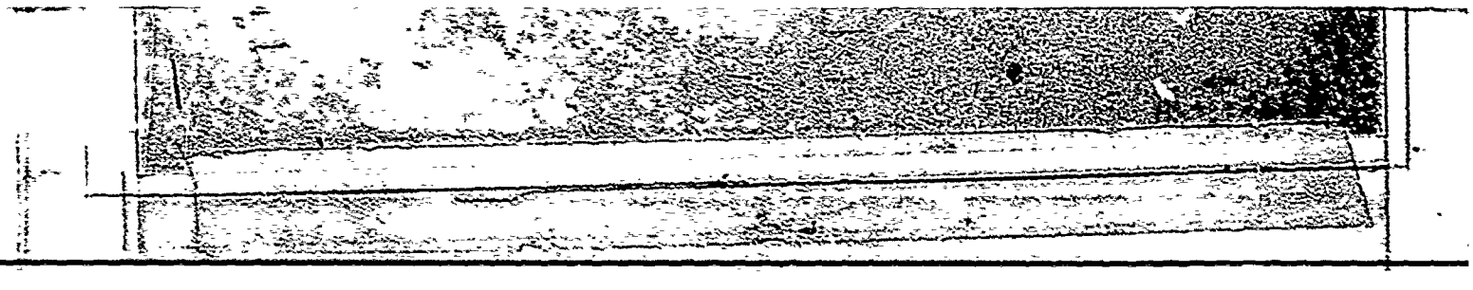
Project Financial Plan:

	FY 1982		FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	54	$2,233		$3,600	39	$20,669	85	$45,128	95	$53,116	100	$56,615
O&MN Install.							(54)	$7,128	(39)	$20,835	(85)	$45,409
APN-6 Spares		$138				$1,404		$2,199				

	FY 1989		FY 1990		FY 1991		FY 1992		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	100	$59,927	45	$28,544					518*	$269,832
O&MN Install.	(95)	$50,751	(100)	$53,423	(100)	$53,423	(45)	$24,040		255,009
APN-6 Spares										3,730
GRAND TOTAL										$528,571

*Quantity represents kits.

Installation Data: Installation will be accomplished at the depot level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Increased Wall Thickness of Main Landing Gear (OSIP 9-84)

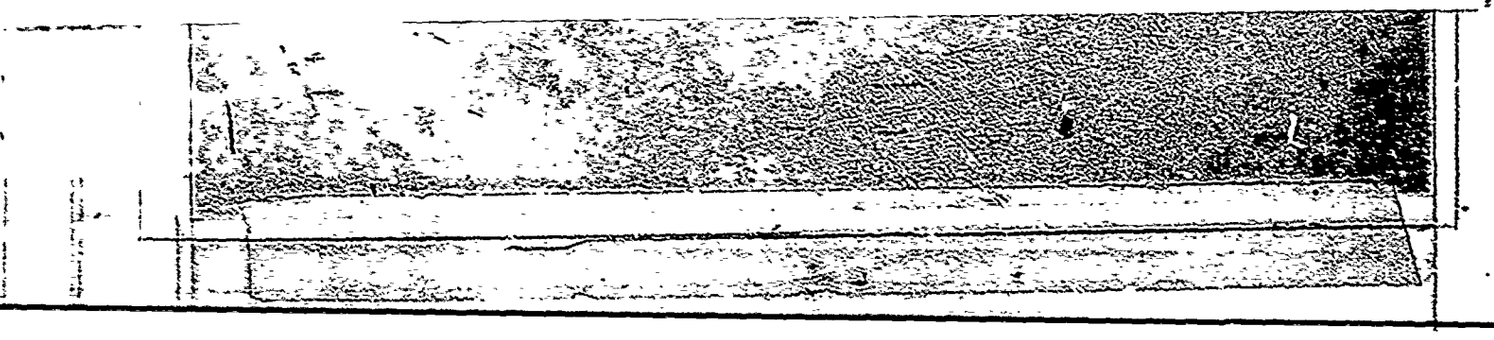
Models of Aircraft Affected: F-14A

Description/Justification:

This engineering change will increase the thickness of the main landing gear shock strut piston wall from 0.494 inches to 0.744 inches. This is being done to eliminate the cracking and subsequent failures being experienced with the current piston. For retrofit, this will require the installation of a new inner piston.

To date, Navy squadrons have experienced ten instances of cracked gear struts. Frequently, these failures occur immediately after catapult launch or during carrier arrestment, both extremely critical phases of flight. To preclude hazarding aircrews and aircraft by exposing them to these potentially catastrophic landing gear failures, fleet squadrons have been inspecting all F-14A main landing gear assemblies as often as every 150 flight hours. Plugs are also being installed in the pistons in the present thin wall plug as an interim measure to extend their fatigue life until replacement with thick walled pistons is possible.

Development Status: Production effectivity was aircraft #461, delivered in April 1983. No approval for full production (AFP) is required.



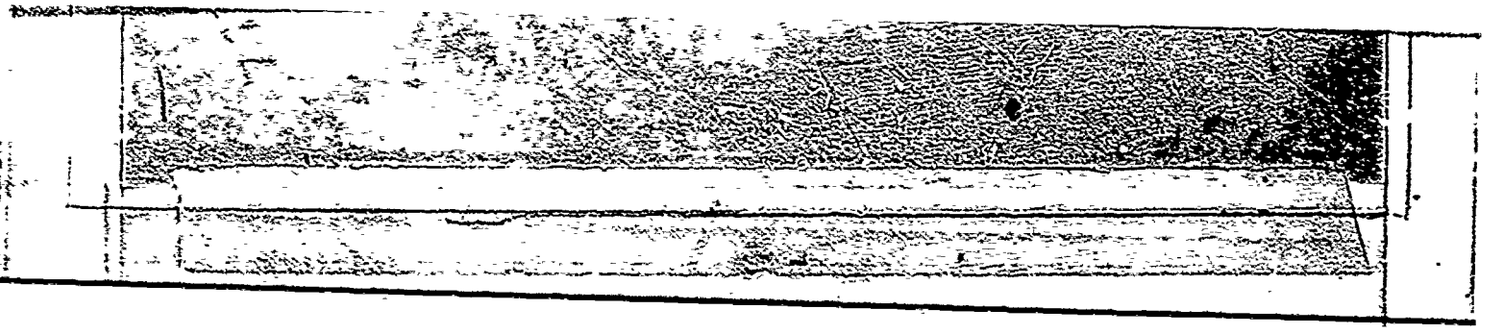
OSIP 9-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	83	$11,845	97	$14,606	105	$16,741	93	$15,695				
O&MN Install.							(83)	$417	(97)	$486	(105)	$528
APN-6 Spares		$1,899		$584		$619						

	FY 1990		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			378	$58,887
O&MN Install.	(93)	$468		1,901
APN-6 Spares				3,102
GRAND TOTAL				$63,890

Installation Data: Modification is scheduled for Standard Depot Level Maintenance (SDLM) via an Accessory Change (AYC).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Vertical Fin-Substructure (OSIP 45-84)

Models of Aircraft Affected: F-14A

Description/Justification:

The Fleet has experienced extensive cracking of the vertical fin to nacelle attachment drag angles and to the nacelle support frames. The change will replace the existing aft nacelle frames and vertical fin drag angle attaching brackets and install new intercostals on each side of the fin centerline to provide the nacelle frames with enhanced flexibility.

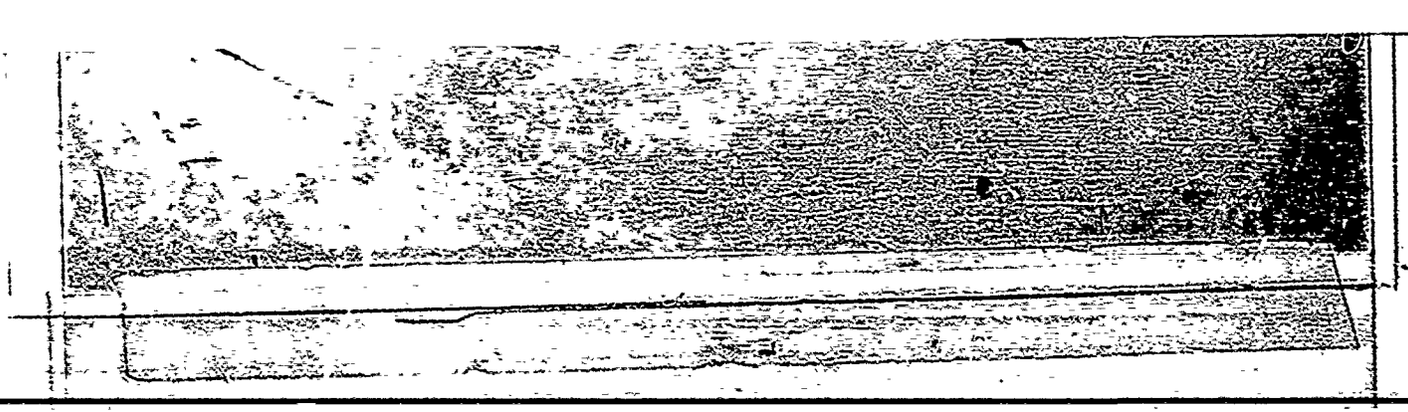
Development Status: Production effectivity is aircraft #516.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	53	$1,440	70	$1,930	95	$2,773	105	$3,245	95	$3,108		
O&MN Install.							(53)	$1,244	(70)	$1,642	(95)	$2,229
APN-6 Spares		$50		$20								

	FY 1990		FY 1991		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					418	$12,496
O&MN Install.	(105)	$2,464	(95)	$2,229		9,808
APN-6 Spares						70
GRAND TOTAL						$22,374

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Maintenance Level (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: F-14A Weapons Rail Operational Improvement (OSIP 43-85)

Models of Aircraft Affected: F-14A

Description/Justification:

Weapons rails are in a state of extreme deterioration due to water and cleaning solution intrusion; wiring insulation and connector breakdown; binding, bending, interference and non-confidence in mechanical linkage; unsatisfactory fasteners; and the inability to test the PHOENIX weapon system prior to take off on the carrier deck due to electromagnetic interference (EMI). PHOENIX capability is dependent on implementation of this program.

Development Status: No approval for full production (AFP) is required. This will be a modification of the harnesses and connectors to correct EMI and maintenance problems. An EMI study by Grumman was initiated to verify that the redesigned weapon rails meet the latest specification requirements. This study was completed in June 1982.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$1,270	492	$17,134	492	$17,542	258	$9,738			1,242*	$45,684
O&MN Install.					(492)	$3,006	(492)	$3,006	(258)	$1,576		7,588
APN-6 Spares		-0-		$10		$10		$10				30
GRAND TOTAL												$53,302

*Quantity listed is rails.

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) and the contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ARC-182 Radio (OSIP 3-86)

Models of Aircraft Affected: F-14A

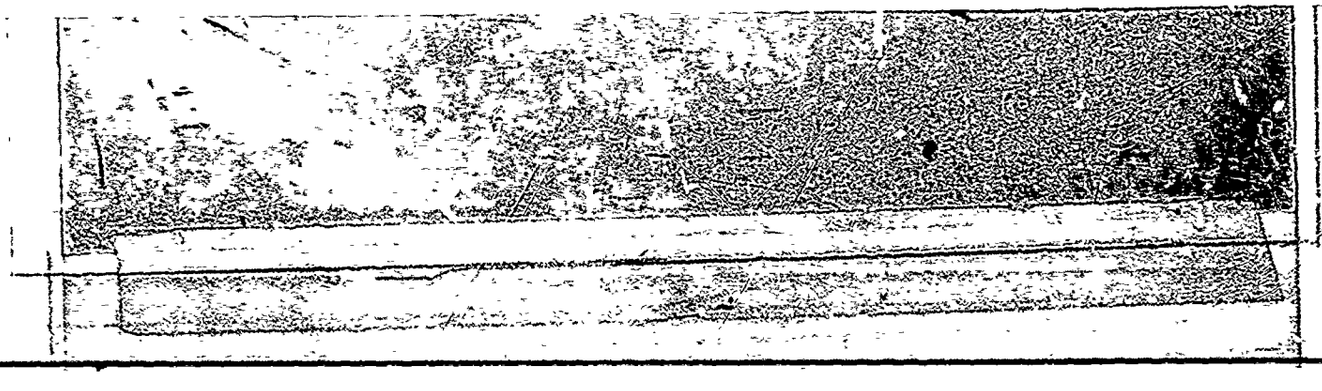
Description/Justification:

The AN/ARC-182 combination radio is a new radio for all tactical aircraft. It provides VHF-FM(30-88MHz), VHF-AM(108-156MHz), VHF-FM(156-174MHz) and UHF-AM(225-400MHz) securable voice communications. Size/weight is 200 cubic inches/10 pounds. Two broadband aircraft antennas are also provided. This replaces the ARC-159V5 or ARC-51 rear cockpit radio.

Development Status: The ARC-182 radio is being developed under RDT&E,N Program Element Number 24163N, Project WO661-CC. Approval for full production (AFP) is scheduled for the second quarter of FY 1984.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		FY 1991	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	15	$1,735	120	$12,978	95	$10,876	95	$11,513	95	$12,186	43	$5,839
O&MN Install.					(15)	$273	(120)	$2,187	(95)	$1,732	(95)	$1,732
APN-6 Spares		$76		$630		$533						

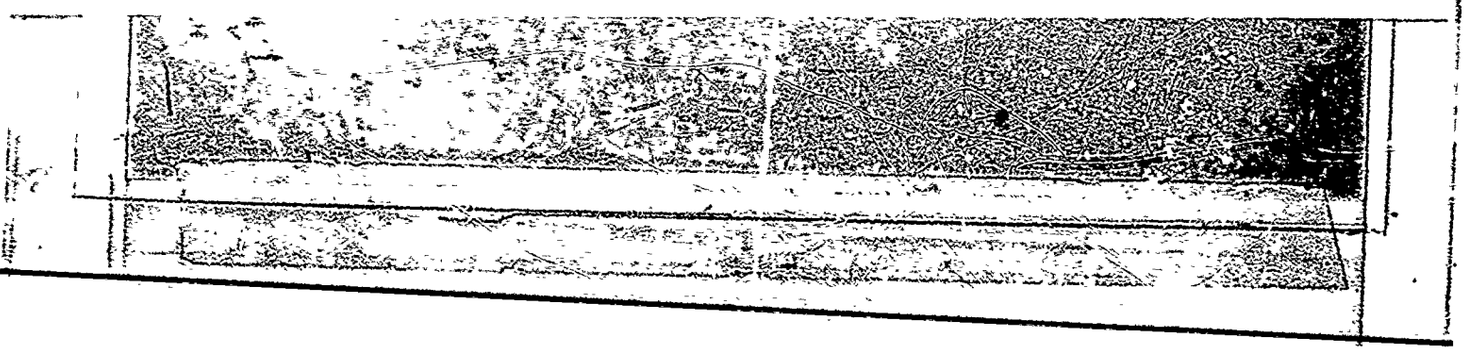


OSIP 3-86

Project Financial Plan (Cont'd):

	FY 1990		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			463	$55,127
O&MN Install.	(138)	$2,515		8,439
APN-6 Spares				1,239
GRAND TOTAL				$64,805

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) at Standard Depot Level Maintenance (SDLM) and by field teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Installation of ALQ-126 Countermeasures Set (OSIP 6-86)

Models of Aircraft Affected: F-14 (TARPS Configured)

Description/Justification:

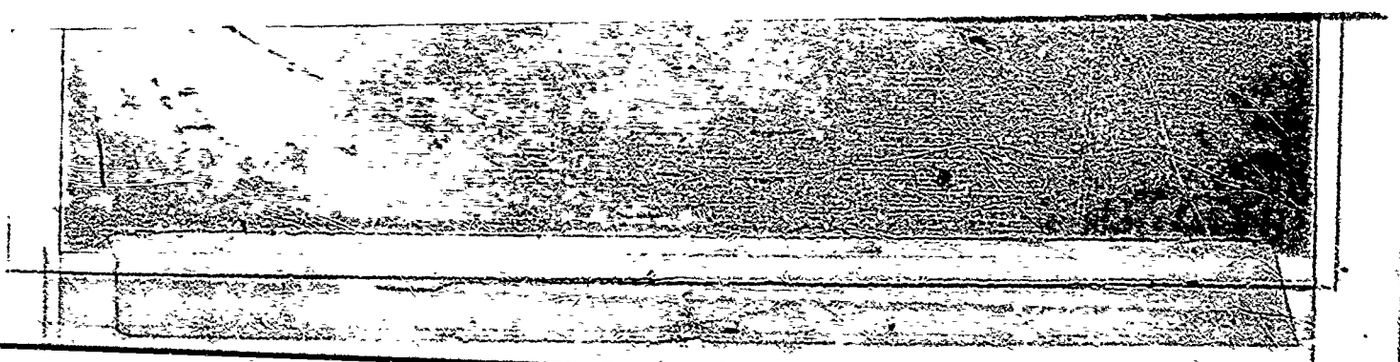
OPNAV directed the retrofit of TARPS configured F-14A aircraft in addition to the FY 79 and subsequent production installation. The ALQ-126 replaces the ALQ-100 providing additional frequency coverage and updated jamming techniques. It has increased capability, better spatial coverage and improved reliability. MFHBF will improve from 118 hours to 122 hours and maintainability (MMH/FH) will be reduced from .7957 to .1958. Size and weight is unchanged but the cooling required will be slightly increased for the ALQ-126B version. The F-14A installation can utilize either the ALQ-126A or ALQ-126B system. Production started with the last aircraft of the FY 79 buy. Due to the limited number for retrofit (33 aircraft), a contractor drive-in modification is planned. Each aircraft will be in the mod-line for 2 months at a 4 per month rate (8 A/C in the mod-line at any one time). Pricing includes the basic modification and all additional changes necessary for compatibility.

Development Status: The ALQ-126B has been approved for full production. F-14 TECHEVAL with ALQ-126B ended in September 1981. Production deliveries with an ALQ-126B installation that is also compatible with the ALQ-126A started in March 1981. Follow-on Operational Test and Evaluation (FOT&E TEMP No. 421-1) is on-going.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$1,797	10	$2,793	10	$2,957	9	$2,817			33	$10,364
O&MN Install.			(4)	$1,475	(10)	$3,687	(10)	$3,687	(9)	$3,318		12,167
APN-6 Spares		$51		$134		$144						329
GRAND TOTAL												$22,860

Installation Data: Installation will be accomplished by the contractor.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Structural Fatigue Improvement Program (OSIP 29-81)

Models of Aircraft Affected: F-5E/F

Description/Justification:

Navy F-5 operations in the air combat maneuvering envelopes require structural improvements in critical components to extend the fatigue life. Recent 1200 hour structural inspection, fleet experience, full scale fatigue testing at Northrop Aircraft Corporation and counting accelerometer data from worldwide USAF F-5 Dissimilar Air Combat Training (DACT) aircraft are used to identify potential structural fatigue items which require attention. Initial structural improvements consist of correcting known problem areas which have been identified subsequent to the 1200 hour structural inspection. These include wing change and wing point rework/improvement in FY 1984 and FY 1985. The program also involves installation of a redesigned Dorsel Longeron and replacement/modification of highly corrosion-prone structural components. These changes will be made on the Navy's seven F-5E and three F-5F aircraft.

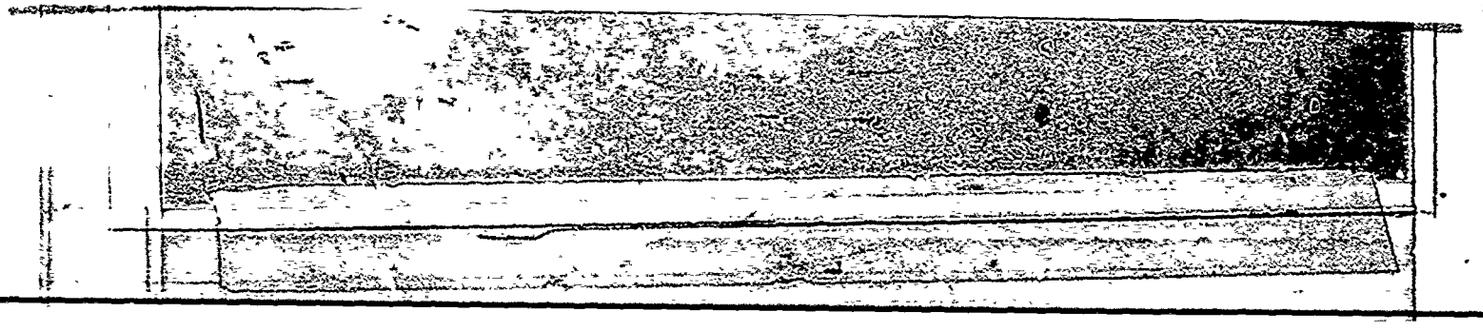
Development Status: No development required.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	10*	$210	3	$1,530	7	$3,401			10	$5,141
O&MN Install.				$36	(3)	$107	(7)	$249		392
APN-6 Spares				$197		$471				668
GRAND TOTAL										$6,201

*Total quantity of aircraft to be modified is ten. The FY 1983 quantity represents kits of one ECP for all ten aircraft.

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) field mod team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Navigation System (OSIP 40-83)

Models of Aircraft Affected: OV-10D

Description/Justification:

The APN-233 Doppler system has been tested by the Navy to satisfy requirements for improved, modern, high-accuracy navigation. The FLIR and laser designator equipped OV-10D has proven extremely valuable in operational employment; however, one continuously reported deficiency has been the inability of OV-10D aircrews to establish location of targets acquired with the FLIR with the precision required for safe and effective coordination of close air support and artillery. Realization of the operational effectiveness inherent in the FLIR installation therefore mandates the use of an improved navigation system. The proven effectiveness and economy of the APN-233 presents an ideal solution to the OV-10D Navigation requirement.

Development Status: The APN-233 will receive approval for full production (AFP) through new procurement of C-2 aircraft in FY 1984.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$35	1	$1,351	17	$2,489			18	$3,875
O&MN Install.					(1)	$60	(17)	$1,009		1,069
O&MN Factory Trng.				$300						300
APN-6 Spares				$58		$556				614
GRAND TOTAL										$5,858

Installation Data: Installation will be accomplished by a contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-144 IR Jammer (OSIP 13-84)

Models of Aircraft Affected: OV-10A/D

Description/Justification:

The ALQ-144 is an infrared jammer developed by the army for helicopter and low performance fixed wing aircraft. The equipment consists of a transmitter unit and a small operator's control unit. Characteristics include: weight - 30 pounds; input power - 1,500 watts; and mean time between failure 250 hours. Current defenses against IR homing missiles (flare decoys and evasive maneuvers) depend on visual detection of the attack. The IR Jammer will provide continuous protection.

Development Status: Approval for service use (ASU) was granted on 29 April 1980 for Marine Corps AH-1 and UH-1 helicopters.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,682	38	$2,266	16	$876	4	$233			60	$5,057
O&MN Install.	(1)	$15	(1)	$16	(38)	$585	(16)	$246	(4)	$62		924
O&MN Factory Training				$13								13
APN-6 Spares				$80		$34						114
GRAND TOTAL												$6,108

Installation Data: Installation will be accomplished by contractor field mod team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: OV-10A to D Conversion (OSIP 61-84)

Models of Aircraft Affected: OV-10A

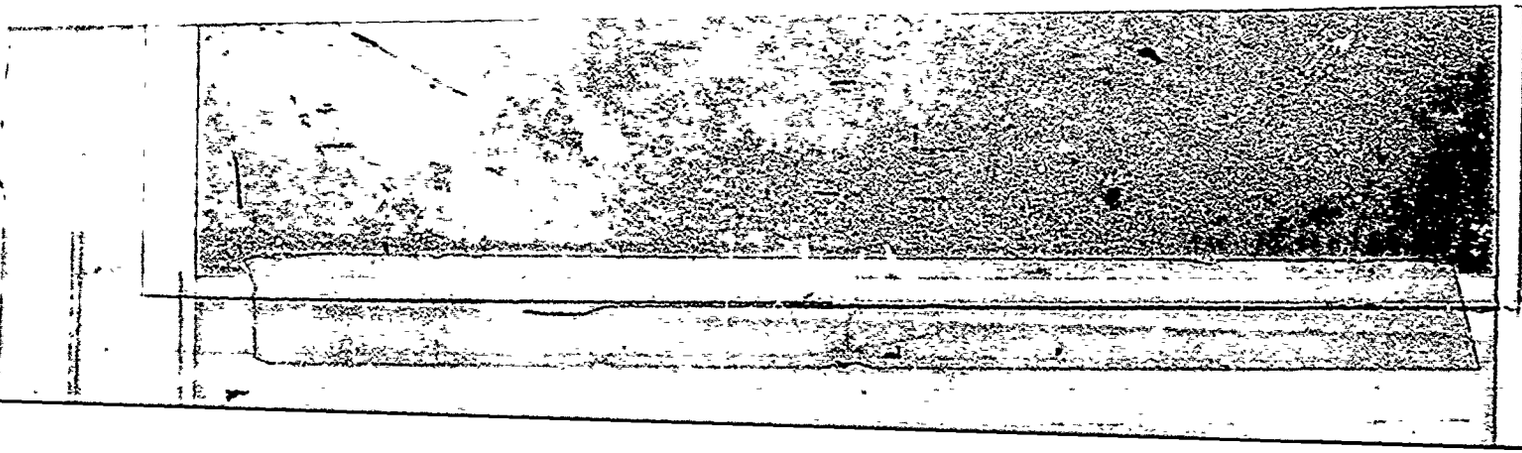
Description/Justification:

The OV-10D (NOS) aircraft provides the USMC with a capability to locate enemy troops, artillery positions and armor under conditions of low visibility, night and masking. The Laser Ranging Detecting System permits target designation for laser guided weapons organic to the fleet. Conversion of 30 additional aircraft will provide the Fleet with additional mission effectiveness, and provide service life extension of these aircraft.

Development Status: The OV-10A to OV-10D (NOS) modification program for 18 aircraft was completed in late November 1980. Approval for full production (AFP) is in process and will be completed by October 1984.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$2,417	6	$31,989	10	$44,357	7	$33,353	7	$34,819
O&MN Install.							(6)	$1,886	(10)	$3,144
O&MN Training								$335		
APN-6 Spares				$7,133		$4,409		$4,536		$5,552

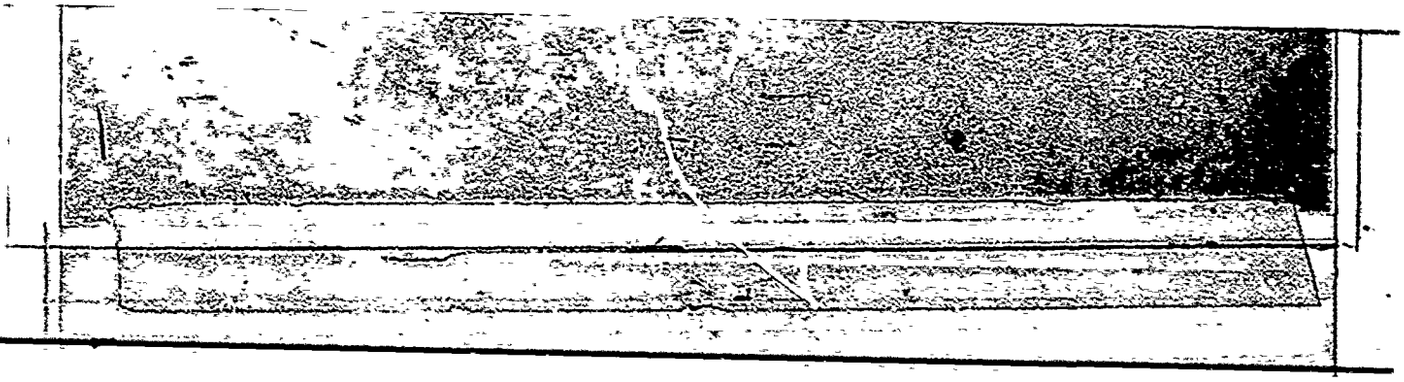


OSIP 61-84

Project Financial Plan (Cont'd):

	FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					30	$146,935
O&MN Install.	(7)	$2,201	(7)	$2,201		9,432
O&MN Training						335
APN-6 Spares						21,630
GRAND TOTAL						$178,332

Installation Data: Installation will be accomplished by a contractor drive-in mod line.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: OV-10D Service Life Extension (OSIP 42-85)

Models of Aircraft Affected: OV-10D

Description/Justification:

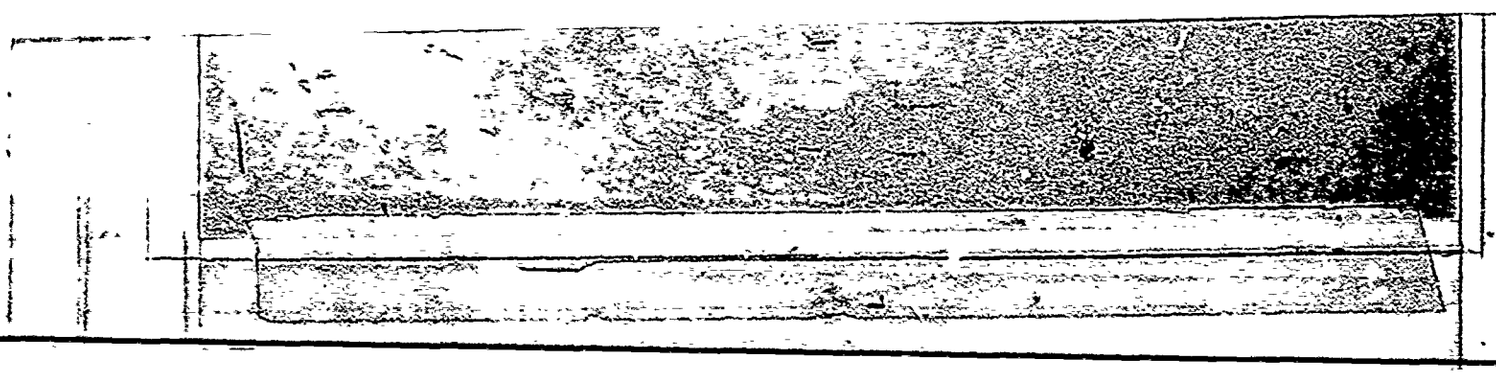
The FLIR and laser designator equipped OV-10D has proven extremely valuable to the Fleet Marine Force. Airframe structural service life of the OV-10D is presently projected to expire in the 1980's without a replacement procurement program to satisfy the operational mission requirement. Additionally, the end of the economic service life is rapidly approaching. The advances in systems state-of-the-art and the consequent changes in the industrial base have lead to significant increases in operating costs. This program will extend the life of the aircraft and make it an effective mission asset into the late 1990's.

Development Status: Several elements of the airframe are known to be a problem and are currently expending many manhours for inspection and repair or are reducing the operational flexibility of the aircraft. A study at the Naval Air Development Center under the auspices of NAVAIR (AIR-530) defined problem areas and the final scope of the required modifications. The SLEP specification is expected to be available by April 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$7,510	7	$13,293	9	$16,338			18	$37,141
O&MN Install.			(2)	$606	(7)	$2,121	(9)	$2,727		5,454
O&MN Factory Trng.				$320						320
APN-6 Spares		$590		$1,164		$1,569				3,323
GRAND TOTAL										$46,238

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) Cherry Point.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: HELLFIRE Missile Control System (OSIP 4-86)

Models of Aircraft Affected: OV-10D

Description/Justification:

The HELLFIRE missile is an air-to-ground laser guided missile which is being developed by the U.S. Army for use against mechanized and hardened targets. The OV-10D has no ordnance capability against these targets and this modification would retrofit the aircraft to carry, launch and guide the missile utilizing the onboard AN/AAS-37 laser designator, giving the OV-10D an autonomous HELLFIRE capability.

Development Status: The HELLFIRE missile is being developed by the U.S. Army and is in test and evaluation. ASARC III was completed in November 1981; DSARC III was completed in March 1982. Production started in January 1983 with IOC of mid-1986. USMC plans missile interface with numerous USMC aircraft. Currently there is an ongoing HELLFIRE program in the AH-1J/T attack helicopters.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$4,698	17	$3,517			18	$ 8,215
O&MN Install.			(1)	$105	(17)	$1,569		1,674
O&MN Training				$314				314
APN-6 Spares		$136		$319				455
GRAND TOTAL								$10,658

Installation Data: Installation will be by Contractor at his plant or by contractor field mod team at three sites.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Dual Chamber Main Landing Gear Shock Absorber (OSIP 33-83)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

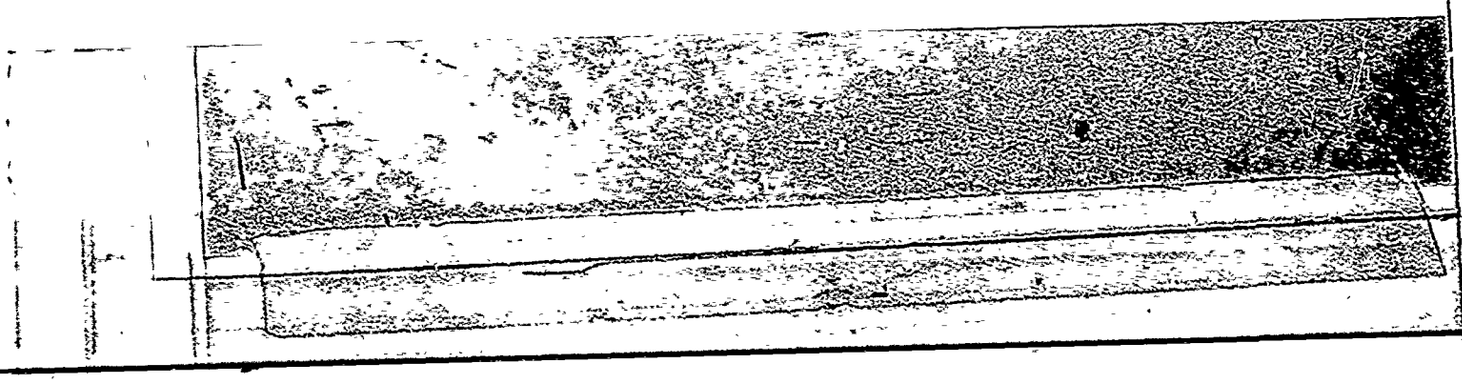
The F/A-18 single chamber shock absorber main landing gear has failed due to high sustained stresses in the retracted position. In order to reduce these sustained stresses to acceptable levels it was necessary to reduce the shock absorber pressure from 443 PSI to 150 PSI, but this decreased pressure reduced the sink rate and taxi capabilities to unacceptable levels. Subsequently it was determined that a dual chamber shock absorber would be necessary. The dual chamber configuration has a lower chamber pressure of 150 PSI for low stresses in the retracted position and a high pressure upper chamber to provide higher sink rate capability.

Development Status: The dual chamber main landing gear shock absorber underwent a qualification test program beginning late July 1981 and was completed in October 1982. No approval for full production (AFP) is required. Full production incorporation began with aircraft numbers F/A-41 and TF/A-10. Cumulative numbers F/A 28-31 were uncorporated in production.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$864	12	$1,623	12	$1,721	4	$465			32	$4,673
O&MN Install.			(4)	$96	(12)	$288	(12)	$288	(4)	$96		768
APN-6 Spares				$243		$50		$68				361
GRAND TOTAL												$5,802

Installation Data: Aircraft F/A 28-31 were assigned for OPEVAL and were fitted with the dual chamber shock absorber in production. Retrofit will be accomplished by contractor field mod teams with effectivity F/A 10-27 and 32-40 and TF/A 3-9.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Non-Cooperative Target Recognition (NCTR) (OSIP 6-84)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

Non-Cooperative Target Recognition (NCTR) is a generic term which implies that an unknown target may be identified in spite of the target's refusal to cooperate in any way. NCTR is only one aspect of the broader identification friend or foe (IFF) problem and significantly adds to the pilot's ability to discern whether an unknown target beyond visual range is a friend or foe without an elaborate question and answer scheme such as the MK XII IFF system. The AN/APG-65 radar was designed for operation in multiple modes to satisfy multiple missions. It is the primary sensor that enhances the day or night all-weather capability of the F/A-18. The F/A-18 is the scheduled replacement for two aircraft mission areas that impose unique design requirements on the radar system. An extremely fast data processing rate is required for the air-to-air mode. The air-to-surface mode calls upon a very large data storage capacity. NCTR changes to the baseline AN/APG-65 provide for (1) increase in storage capacity from 4K to 16K Random Access Memory (RAM), (2) the addition of a micro-processor, and (3) improvements to software.

Development Status: Design is complete, hardware modification and laboratory testing was completed in November 1983, software development is in progress with an estimated completion date during the fourth quarter FY-1984. Flight test commenced in March 1983 and will complete March 1984. Approval for full production (AFP) is not required. Production incorporation commenced with the FY 1982 procurement, aircraft F/A-87 and TF/A-21.

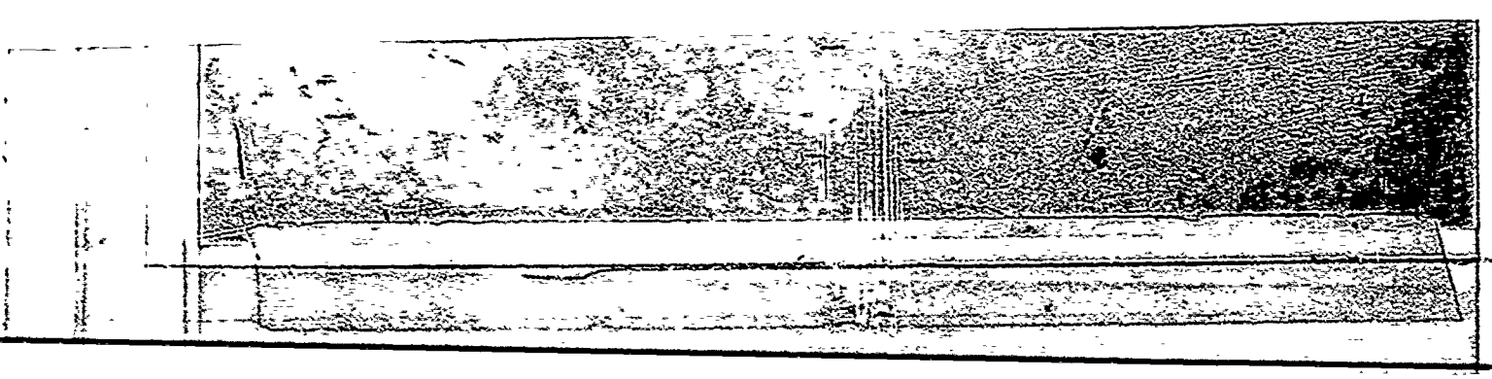
OSIP 6-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$2,660	48	$10,244	23	$5,197			75	$18,101
*O&MN Install.			(4)	$51	(48)	$370	(23)	-0-		421
APN-6 Spares		$242								242
GRAND TOTAL										$18,764

*See Next Page

Installation Data: Retrofit will be accomplished by contractor field mod team and at organizational level (due to multiple kits and effectivity) with aircraft effectivity F/A 17-86 and TF/A 5-20.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Correction of Discrepancies Identified during Preliminary Evaluation and Subsequent Flight Test Programs (OSIP 11-84)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

Discrepancies found during testing and evaluation can sometimes be incorporated in production aircraft, effective with the physical configuration audit which establishes the product baseline of the aircraft. However, when this cannot be done due to time constraints, retrofit of the changes in already delivered aircraft will require funding through the Aircraft Modification Program. The unacceptable alternative to retrofitting would be multiple configurations in the Fleet, which create maintenance and supply problems, and in many cases the mission capability of the aircraft would be adversely affected.

Differential Leading Edge Flap
Airframe Mounted Accessory Drive (AMAD) Heat Exchanger
Main Landing Gear (MLG) Trunnion
Main Landing Gear (MLG) Brace
Electromagnetic Interference Protection of Leading Edge Extension Leading Edge Skin
Sealed Lead Acid Battery
Negative "G" Fuel System Limitations
Nose Landing Gear (NLG) Cylinder Lug
Center Fuselage Fatigue Improvement
Engine Control Unit
Turbine Boost Pumps
Fuel System Modification
Throttle Sensitivity - AFC
Throttle Sensitivity - PPC
Avionics Cockpit Cooling Fan Thermal Protection
Lateral Control Improvement Foreign Object Damage (FOD) Protection
Automatic AC BUS Isolation
Leading Edge Flap "U" Joints Torque
Horizontal Stabilizer Beef Up
Stop Modules for Leading Edge Flap
Air Turbine Starter (ATS) AMAD Design Changes

OSIP 11-84

Description/Justification (Cont'd):

ALQ-126 Support Assembly
Addition of Latching Relay to BRU-33
BRU-32/A Breech Assembly Design Change
Fuselage Fuel Transfer Jet Ejector
Copper to Steel Rollers on Leading Edge Flap (LEF)
Motive Flow Pumps
Forward Fuselage Keel Web Beef-Up
Speed Brake Hinge Moment Reduction

Development Status: Each change is either undergoing testing or will be tested and validated prior to installation in the F/A-18.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$5,251		$8,024		$3,690		$3,096		$6,691		$2,584
O&MN Install.		$1,014		$6,102		$8,045		$5,964		$2,734		$757
APN-6 Spares		$787		$239		$537						

	FY 1990		TOTAL	
	Qty	Cost	Qty	Cost
APN-5				$29,236
O&MN Install.		$390		25,006
APN-6 Spares				1,563
GRAND TOTAL				$55,805

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) or by Contractor Field Modification Teams, Organizational and Intermediate levels. Installation will occur by order of priority as established from the results of further flight testing and as operational flights are accumulated.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Video Recording System (VRS) (OSIP 55-84)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

The Video Recording System (VRS) consists of a Head Up Display (HUD) camera and a Video Tape Recorder (VTR) and replaces the KB-34A motion picture camera. The VRS is designed to enhance training, safety, single pilot operability and operational capability. The VRS has the capability to record the display presented on the HUD as well as the view seen by the pilot through the HUD and the pilot's headset audio. The compactly packaged lightweight recorder will extend the recording time available over the KB-34A which has been removed from the aircraft. The VRS will provide the greatest training benefits from the limited flight time available.

Development Status: A recharged TEAC commercial recorder procured as GFE is now available. An existing Fairchild camera has been repackaged for F/A-18 while preserving commonality with the F-14 camera at the SRA level. Approval for full production (AFP) is not required. Production incorporation commenced with the FY 1981 (LOT V) aircraft numbers F/A-37 and TF/A-10 and subsequent.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$873	21	$982			33	$1,855
O&MN Install.			(12)	$357	(21)	$515		872
APN-6 Spares		$76		$115				191
GRAND TOTAL								$2,918

Installation Data: Retrofit will be accomplished at Naval Air Rework Facility (NARF) North Island during Standard Depot Level Maintenance (SDLM) and by contractor field mod team with effectivity aircraft numbers F10-36, TF3-9 and subsequent.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN -- Activity 5

Modification Title and No.: AN/ALR-67 Radar Receiving Set, Countermeasures (OSIP 66-84)

Models of Aircraft Affected: F/A-18

Description/Justification:

This OSIP provides AN/ALR-67 installation provisions to accommodate the GFE budgeted in the AN/ALR-67 OSIP 114-85. The AN/ALR-67 Radar Receiving Set, Countermeasures Warning and Control System is the radar and missile warning system in advanced tactical aircraft (F/A-18, A-6E & F-14). The AN/ALR-67 provides detection and direction finding (DF) over the entire RF spectrum of target tracking and missile control system. It provides full hemispherical coverage in all platform installations. The ALR-67 is a firmware reprogrammable system incorporating a high intensity alpha-numeric azumith display. The system is fully integrated, via the MIL-STD-1553 data buss, with other on-board EW equipments. The AN/ALR-67 provides significant improvements/enhancements in DF coverage, threat coverage and reliability/maintainability over equipments currently in use.

Development Status: Engineering development models were fabricated and have undergone extensive and various test and evaluation events. The reliability development test, environmental qualification test and TECHEVAL are complete. Operational effectiveness testing in the A-6E is complete. The AN/ALR-67 has been integrated with other EW systems and laboratory and ground testing is underway in the F/A-18. Approval for Limited Production (ALP) is planned for the second quarter of FY 1984.

OSIP 66-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$10,600	24	$3,716					28	$14,316
O&MN Install.					(13)	$398	(15)	$459		857
APN-6 Spares		$2,021		$361						2,382
GRAND TOTAL										$17,555

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) concurrent with Standard Depot Level Maintenance (SDLM) and Field Teams.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Automatic Wingfuel Recirculation (OSIP 34-85)

Models of Aircraft Affected: F/A-18, TF/A-18

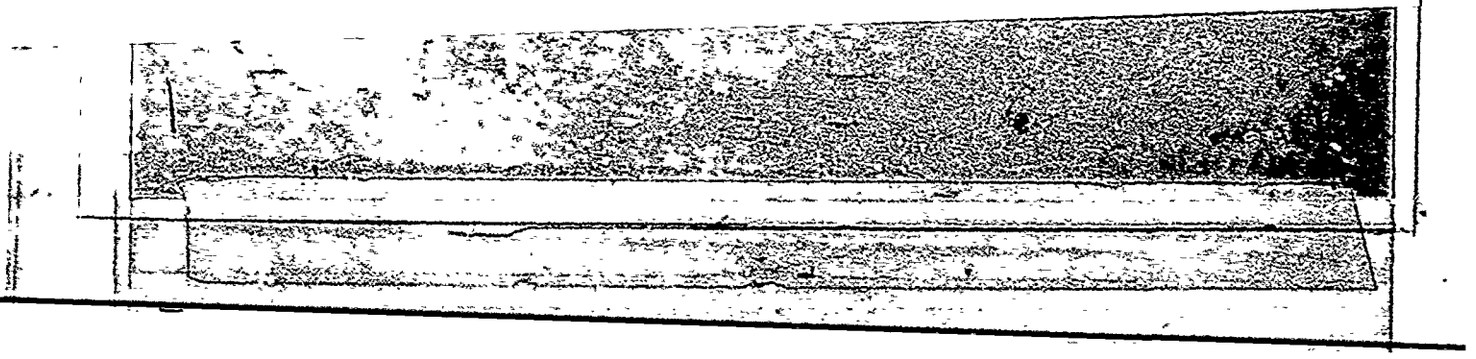
Description/Justification:

Since an air/fuel heat exchanger is being installed in production aircraft, the wing fuel recirculation system, originally designed to return part of the engine motive flow fuel to the lower wing surface for cooling, may not be needed for many flights where ambient temperatures are not extreme. Modification to the wing recirculation system will provide recirculation above 3,000 lbs. fuel capacity and divert motive flow fuel directly to the feed tanks rather than back to the wings. This change will eliminate a potential wing trapped fuel condition when recirculation is not used. To accomplish this change, wiring changes are necessary.

Development Status: Modification of an aircraft for testing was completed in August 1982 and has undergone actual fuel soak and flight testing to obtain necessary data. Testing was completed in mid September 1982. A study of the data has determined that the 3,000 lbs. capacity is the proper fuel level for operating the system. Production incorporation is planned to start with the FY 1985 procurement Lot IX.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	3	$1,432	45	$2,526	45	$2,674	45	$2,831	45	$2,996	45	$3,172
O&MN Install.			(3)	$20	(45)	$296	(45)	$296	(45)	$296	(45)	$296
APN-6 Spares		$18		$220								



OSIP 34-85

Project Financial Plan (Cont'd):

	FY 1991		FY 1992		FY 1993		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	45	$3,357	44	$3,475			317	$22,463
O&MN Install.	(45)	$296	(45)	$296	(44)	$289		2,085
APN-6 Spares								238
GRAND TOTAL								$24,786

Installation Data: Retrofit will be accomplished at Naval Air Rework Facility (NARF) North Island at Standard Depot Level Maintenance (SDLM) and by Field Teams with effectivity aircraft numbers F10-234, TF3-29.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Special Weapons (OSIP 35-85)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

The baseline aircraft monitor and control (AMAC) system which had proceeded through the fabrication of four Engineering Development Models (EDM) had design deficiencies. In addition to correction of the original design deficiencies, changes are being considered which are in response to the need for additional operational capabilities.

Development Status: Design requirements and mechanizations were finalized so that fabrication of a system breadboard and preproduction units could be accomplished. Four preproduction units were delivered in August 1983. Preliminary unit planning has begun and first delivery of 12 production units for aircraft installation has commenced. Second production units (60 systems) will commence delivery in October 1984. Production incorporation commenced with the FY 1982 procurement. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	23	$1,126	26	$1,168	12	$571			61	$2,865
O&MN Install.			(23)	$372	(26)	$420	(12)	$194		986
APN-6 Spares		$57		$227		$109				393
GRAND TOTAL										$4,244

Installation Data: Retrofit will be accomplished by contractor field mod team with effectivity aircraft numbers F10-86 and TF3-20.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-126B Provisions (OSIP 36-85)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

The AN/ALQ-126B is an improved version of the AN/ALQ-126A Electronic Countermeasures Set. Retrofit modifications will include changes to make the AN/ALQ-126B compatible with the on-board avionics. Significant enhancement over the AN/ALQ-126A will be realized by incorporated/expanded techniques and software processing enabling the ALQ-126B to communicate with the ALR-67. Operational flexibility will be achieved by this change because the aircraft will be able to accommodate either the ALQ-126A which is presently in inventory but not in sufficient quantities to fulfill F/A-18 fleet requirements, or use of the ALQ-126B. Aircraft modifications required to retrofit the ALQ-126B are limited to tunable filter and software. Waveguide alteration is not required.

Development Status: The AN/ALQ-126B has completed OPEVAL, and approval for limited production (ALP) was granted in August 1982. Approval for full production (AFP) is planned for the fourth quarter FY 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	48	$4,439	60	$4,446	60	$4,707	33	$2,740			201	$16,332
O&MN Install.			(48)	$80	(60)	$100	(60)	$100	(33)	$55		335
APN-6 Spares		$645		$647		$678						1,970
GRAND TOTAL												$18,637

Installation Data: Retrofit will be accomplished at Naval Air Rework Facility (NARF) North Island, during Standard Depot Level Maintenance (SDLM) or by field mod team (FMT) with effectivity aircraft numbers F/A 37-145 and TF/A 10-24.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Double Density AN/AYK-14 Mission Computer (OSIP 40-85)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

The Mission Computer (MC), AN/AYK-14, presently utilized in the F/A-18 and TF/A-18 aircraft does not provide sufficient memory for the present requirements (e.g. HARPOON) and future memory requirements. This change will provide "double density" memory cards, which are directly replaceable with the current memory cards, in effect giving the memory cards twice as much memory.

Development Status: Thirty-four (34) Engineering Development modules have been prepared and twenty-four (24) have been developed by NATC Patuxent River, MD. To date, interface testing, interchange testing, and reliability development testing have been completed. Environmental qualification was completed in February 1982. Production deliveries of 64K memory modules began in April 1983. Production incorporation commenced with the FY 1981 procurement (LOT V) aircraft numbers F37 and TF10 to add restrictors for cooling requirements. Production installation of the Double Density AYK-14's will commence with the FY 1982 procurement (LOT VI) aircraft numbers F87 and TF21.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	47	$6,861	46	$7,024	93	$13,885
O&MN Install. "O" Level		-0-				-0-
APN-6 Spares		-0-				-0-
GRAND TOTAL						$13,885

Installation Data: Retrofit will be accomplished at the "O" level via an AFC to add restrictors in aicraft F10-36 and TF3-9. GFE AYK-14 Double Density retrofit will be accomplished via an AVC at the "I" level commencing FY 1984 in aircraft F10-86 and TF3-20.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Ejection Seat Improvement (OSIP 61-85)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

Test data and live ejections have identified problems with the escape system. Changes to the drogue parachute, main parachute, and backrest are necessary to eliminate mechanisms that could cause major injuries or result in fatalities.

Development Status: Feasibility tests have been conducted by Martin Baker. The design and development program has been identified. Testing, with Navy observers, began at Martin Baker facilities in September 1983. Completion of testing at NWC China Lake is scheduled in September 1984. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		TOTAL	
	Qty	Cost	Qty	Cost
APN-5	178	$1,674	178	$1,674
O&MN Install.		-0-		-0-
APN-6 Spares		$222		222
GRAND TOTAL				$1,896

Installation Data: Retrofit will be accomplished at the Organizational level and Naval Air Rework Facility (NARF) North Island. Planned effectivity is Block 14, F-146, TF-25 (FY 1983 procurement).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: OMNIBUS Weapons (OSIP 24-86)

Models of Aircraft Affected: F/A-18, TF/A-18

Description/Justification:

This modification will achieve F/A-18 compatibility with those new or existing, but not previously addressed, weapons which will be available in the USN/USMC Weapons inventory commencing in FY 1985. These include the new weapon requirements of AIM-7M Sparrow Missile, AIM-9M Sidewinder Missile, AGM-84D Harpoon Missile provisions, FMU-139B Fuse, AGM-88 HARM Enhancement, as well as those existing weapons not previously integrated with the F/A-18 aircraft, i.e., Mines, and BLU-80 Chemical Weapon. The integration of the Tactical Aircrew Combat Training System (TACTS) hardware and F/A-18 training mode is also included in this modification. Increasing the F/A-18 weapon capability to include these weapons cited, will meet the urgent fleet requirement to maximize F/A-18 effectiveness in "at-sea" and "power-projection ashore" missions.

Development Status: The nonrecurring design effort for this modification effort has been authorized and was funded via BOA commencing August 1982. This phased authorization approach has been instituted to ensure software/hardware delivery to optimize the earliest possible coincidence of aircraft capability and weapon availability in concert with F/A-18 fleet deployment requirements. This approach will provide the maximum F/A-18 fleet weapon capability possible within the constraints of existing mission computer and stores management processor memory capacity.

Project Financial Plan:

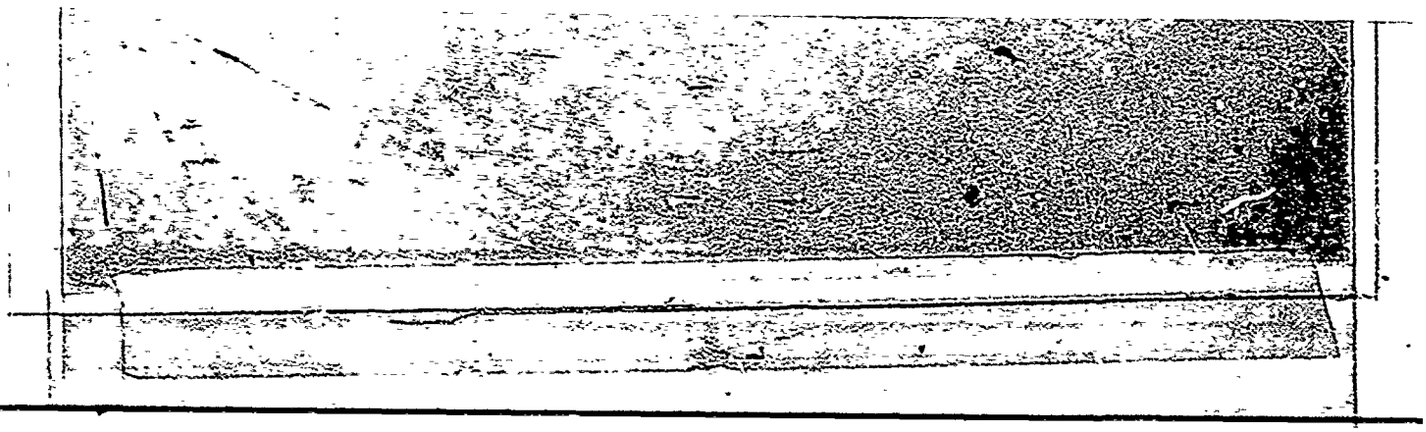
	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	30	$17,039	44	$19,480	44	$20,620	45	$22,323	45	$23,629
O&MN Install.			(25)	$364	(44)	$641	(44)	$641	(45)	$655
APN-6 Spares		$2,435		$3,740						

OSIP 24-86

Project Financial Plan (Cont'd):

	FY 1991		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			208	$103,091
O&MN Install.	(50)	$728		3,029
APN-6 Spares				6,175
GRAND TOTAL				$112,295

Installation Data: Retrofit will be established at the Naval Air Rework Facility (NARF) North Island with effectivity aircraft F37-136 and TF 10-29.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-157(V) IR Jammer (OSIP 22-77)

Models of Aircraft Affected: CH-46E

Description/Justification:

The ALQ-157(V) is an infrared jammer that degrades the capabilities of IR homing missiles posing serious threats to tactical helicopters. Current defenses against IR homing missiles (flare decoys and evasive maneuvers) depend on visual detection of the attack. No warning receiver is available. The ALQ-157(V) provides continuous protection. The equipment consists of two externally mounted transmitter units, an internally mounted electronic control unit, and a pilot's control-indicator. This is a joint Army-Navy program for heavy helicopters with the Navy acting as lead service. The basic jammer or a variant will be applicable to the USMC CH-46E, CH-53A/D and to the Army CH-47C helicopters. The ALQ-157(V) is being manufactured by Xerox Electro-Optical Systems, Pasadena, California.

Development Status: Competitive testing of three engineering development models (EDM's) was completed in late FY 1977 with two of the systems considered capable of meeting the CH-46/47/53 requirements with improvements to be incorporated in production. Further tests/analysis leading to specifications for production test articles accommodating requirements of all candidate helicopters were completed in FY 1978. Approval for full production (AFP) was received in October 1983.

Project Financial Plan:

	FY 1977		FY 1979		FY 1981		FY 1982		FY 1983		FY 1984	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$1,000	1*	$1,014		$1,771				$520	121	$13,141
O&MN Install.							(1)	$13			(1)	$15
APN-6 Spares												$2,514

* Prototype.

OSIP 22-77

Project Financial Plan (Cont'd.):

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	94	$9,1;2	40	$3,505			256	$30,083
O&MN Install.	(120)	$1,773	(94)	$1,322	(40)	$579		3,702
APN-6 Spares		$1,506		$524				4,544
GRAND TOTAL								$38,329

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) Cherry Point and NARF North Island during Standard Depot Level Maintenance (SDLM), field teams and drive-in mod.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: H-46 Fiberglass Blades (OSIP 9-78)

Models of Aircraft Affected: CH-46D/E/F, UH/CH/HH-46A

Description/Justification:

The H-46 fiberglass rotor blades will have a fiberglass "D" spar with a titanium erosion strip, fiberglass skin and nomex honeycomb core trailing edge. This construction concept is expected to provide the following characteristics: will not corrode, environmental degradation insignificant, insensitive to small defects, soft failure propagation with a change in stiffness warning, preflight visual inspection only, mean time between removal (MTBR) will increase from 288 hours to 2,500 hours, manufacturing process repeatability will reduce blade tracking and balance time, and procurement cost per blade compared to current blade will remain equivalent.

Development Status: Approval for full production (AFP) has been granted.

Project Financial Plan:

	FY 1978		FY 1979		FY 1980		FY 198		FY 1982		FY 1983	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	27	$11,691	48	$10,393	56	$13,527	51	$14,390	92	$25,391	48	$15,524
O&MN Install. "O" Level												
APN-6 Spares		$383		$686		$807		$1,578		$2,046		$4,065

OSIP 9-78

Project Financial Plan (Cont'd):

	FY 1985		TOTAL	
	Qty	Cost	Qty	Cost
APN-5	32	$14,935	354	$105,851
O&MN Install. "O" Level		-0-		-0-
APN-6 Spares		-0-		9,565
GRAND TOTAL				$115,416

Installation Data: Installation will be accomplished at the organizational level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: H-46 Safety, Reliabilty and Maintainability (S,R&M) Update (OSIP 31-81)

Models of Aircraft Affected: CH/UH/HH-46

Description/Justification:

H-46 service life extension to at least the mid-1990's is realistic in view of the status of current planning for a replacement aircraft and present budgetary outlook. This extension of operating life makes corrective action on existing major material deficiencies inherent to the aging H-46 fleet imperative if unacceptable impact on safety, fleet readiness and cost of continued ownership is to be avoided.

Planned items involve changes to ensure adequacy of the basic airframe structure and its integral components and to improve reliability and maintainability of various system components. A detailed analysis of the changes indicates their incorporation will significantly improve safety, aircraft availability (+9.6 percent) and maintenance hours per flight hour (MH/FH - 1.91).

Development Status: No development is necessary but qualification testing of affected parts/components will be required. Contractor installation and flight test will be conducted followed by Navy evaluation at the Naval Air Test Center (NATC), Patuxent River, Maryland.

Project Financial Plan:

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$28,486	3	$15,404		$23,165	78	$86,031	87	$109,823
O&MN Install.					(2)	$2,048	(2)	$6,307	(3)	$5,102
APN-6 Spares		$968		$2,673				$18,402		$27,006

OSIP 31-81

Project Financial Plan (Cont'd):

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	120	$145,947	56	$77,488					345	$486,344
O&MN Install.	(72)	$30,271	(114)	$45,693	(122)	$44,817	(30)	$9,161		143,399
APN-6 Spares		$18,601		$16,973						84,623
GRAND TOTAL										$714,366

Installation Data: To be incorporated during Standard Depot Level Maintenance (SDLM) at Naval Air Rework Facility (NARF) Cherry Point and Naval Air Rework Facility (NARF) North Island.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ARN-118 TACAN (OSIP 21-82)

Models of Aircraft Affected: HH-46A, CH-46D, CH-46E, UH-46D

Description/Justification:

The H-46 tactical navigation (TACAN) systems have demonstrated low reliability and poor maintainability, resulting in both high cost of ownership and degraded Fleet readiness. Reliability data for the ARN-52 in the H-46 series helicopter has established mean flight hours between failure (MFHBF) of approximately 78 hours. In view of the low MFHBF for the ARN-52, all H-46's will be retrofitted with the ARN-118 TACAN. In addition to the significant improvement in MFHBF (typically 1700+ hours in other Navy/Air Force aircraft) an operational improvement of approximately 200-mile (200 to 390 NM) increase in reliable TACAN information plus air-to-air range information will be realized. The AN/ARN-118 is smaller and lighter than the currently installed equipment. Direct replacement is made possible by mounting adapters for installation.

Development Status: The ARN-118 is approved for full production.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	10	$259	90	$1,897	150	$3,298	106	$2,496			356	$7,950
O&MN Install.			(10)	$22	(80)	$173	(114)	$258	(152)	$344		797
APN-6 Spares								-0-				-0-
GRAND TOTAL												$8,747

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) Cherry Point and Naval Air Rework Facility (NARF) North Island during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Night Vision Goggles (OSIP 66-82)

Models of Aircraft Affected: CH-46E

Description/Justification:

The present and projected threat require low altitude helicopter operations which cannot now be conducted at night due to a lack of adequate night vision equipment. AVS-6, third generation aviation night vision goggles, with appropriate cockpit lighting modifications for compatibility, will provide a limited capability for the flight crew to regain 25-75 percent of the night time.

Development Status: The Helicopter Night Vision System is being developed under RDT&E,N Program Element Number 64213N. The goggles have been developed by the U.S. Army and are referred to as Aviator's Night Vision Imaging System (ANVIS) or AVS-6. USN approval for full production (AFP) is expected by March 1984. Army production was authorized in September 1982. Quick Fix lighting modification for AVS-6 compatability has been developed by the Naval Air Test Center (NATC) and kits are being manufactured by NAC for the CH-46E. Permanent lighting modification will be developed through an ECP. The permanent lighting modification will be installed in 255 CH-46E aircraft.

Project Financial Plan:

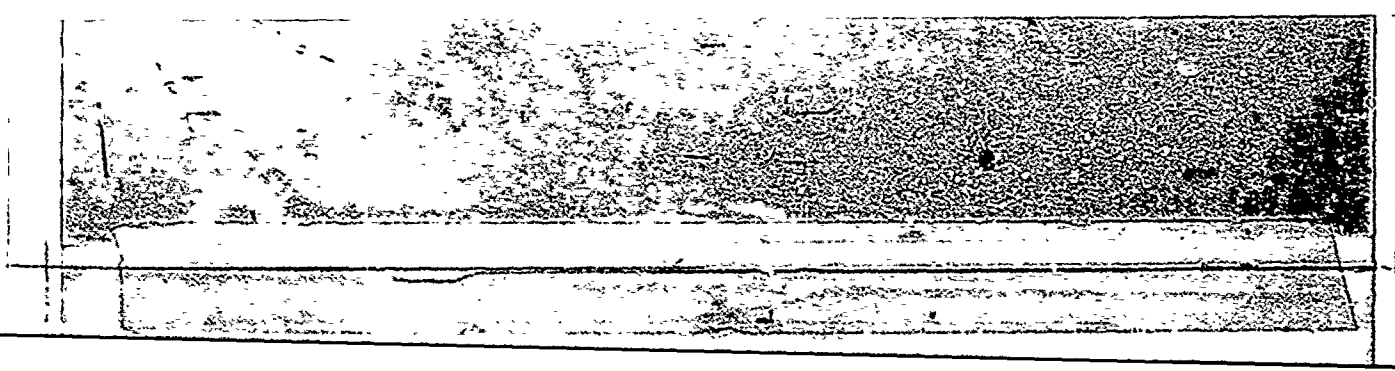
	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (Quick/Full)	8/0	$1,469	88/0	$5,220	0/6	$7,877	0/84	$7,425	0/84	$5,109	0/81	$4,384
O&MN Install.									(45)	$244	(65)	$348
O&MN Training		$80										
APN-6 Spares						$1,464		$726		$411		

OSIP 66-82

Project Financial Plan (Cont'd):

	FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					96/255	$31,484
O&MN Install.	(123)	$640	(22)	$115		1,347
O&MN Training						80
APN-6 Spares						2,601
GRAND TOTAL						$35,512

Installation Data: Quick Fix Lighting Mod kits will be installed at the organizational level by squadron maintenance personnel. Full Lighting Mod kits will be installed at the depot level during Standard Depot Level Maintenance (SDLM) or by field teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Engine Air Particle Separators (OSIP 42-83)

Models of Aircraft Affected: CH-46E

Description/Justification:

The CH-46E (reworked from CH-46D/F's) are equipped with either: (a) nonseparating inlet and barrier screen or (b) the engine air particle separators (EAPS) now installed on the remaining H-46D/F's. The EAPS is a flight proven erosion protection system with low power loss. It has experienced some reliability and maintainability (R&M) problems and cannot be used in any environment where icing exists or is predicted. However, the barrier screens impose high power loss, low R&M, and have no anti/de-ice capability. Therefore EAPS are needed as a near term solution to the foreign object damage (FOD) problem and either a redesigned inlet system utilizing the present EAPS or a Heated EAPS (HEAPS) is required for a long term, all weather capability.

Development Status: This system is qualified and flying on H-46 aircraft.

Project Financial Plan:

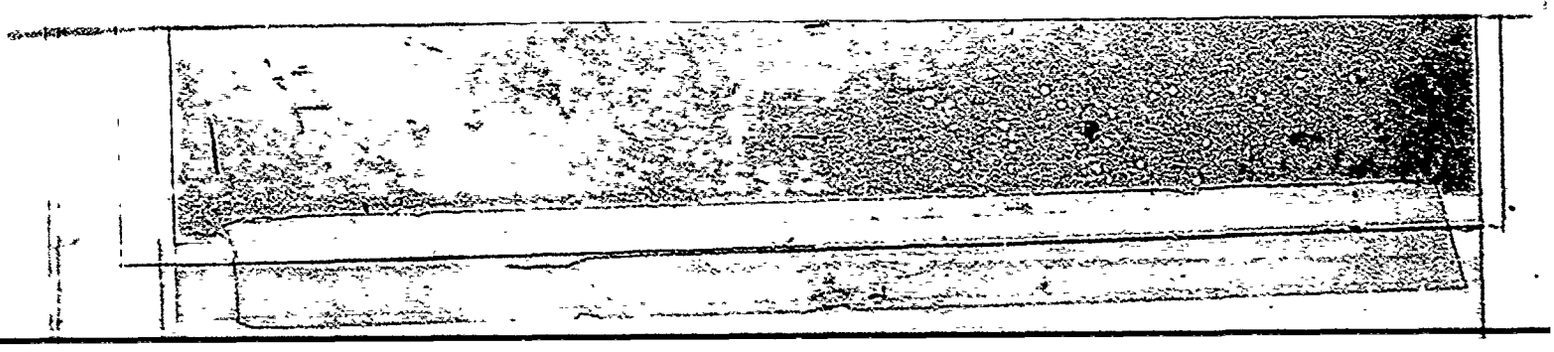
	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$1,954	25	$4,809	24	$4,737	38	$7,943	40	$8,847
O&MN Install.					(5)	$136	(24)	$652	(36)	$970
APN-6 Spares		$27				-0-				

OSIP 42-83

Project Financial Plan (Cont'd):

	FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					127	$28,290
O&MN Install.	(36)	$976	(26)	$705		3,445
APN-6 Spares						27
GRAND TOTAL						$31,762

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Ground Proximity Warning System (OSIP 63-84)

Models of Aircraft Affected: CH-46E, CH-46D, HH-46A, JH-46A/D, CH-46A

Description/Justification:

The Ground Proximity Warning System (GPWS) is intended to provide flight crews with audible and visual warnings of imminent inadvertent contact with the ground due to excessive rates of descent, excessive closure rates to terrain, altitude loss, or flight into terrain when not in a landing configuration. The GPWS is very effective in alerting pilots and air crews of impending Controlled Flight Into Terrain (CFIT) danger.

Development Status: The GPWS is a commercially available, off-the-shelf product that meets ARINC standard 594. Flight tests and verification of the GPWS computer software flight profiles for the H-53 aircraft installation have been complete for the RH/CH-53A/D.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$1,019	132	$3,247	132	$3,207	84	$2,149			352	$ 9,622
O&MN Install.			(4)	$53	(132)	$1,767	(132)	$1,749	(84)	$1,113		4,682
O&MN Training				$10								10
APN-6 Spares		$31		$760		$540						1,331
GRAND TOTAL												$15,645

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: H-46 Emergency Flotation System (OSIP 21-85)

Models of Aircraft Affected: CH-46E/UH-46D/CH-46D/HH-46A/MCH-46A

Description/Justification:

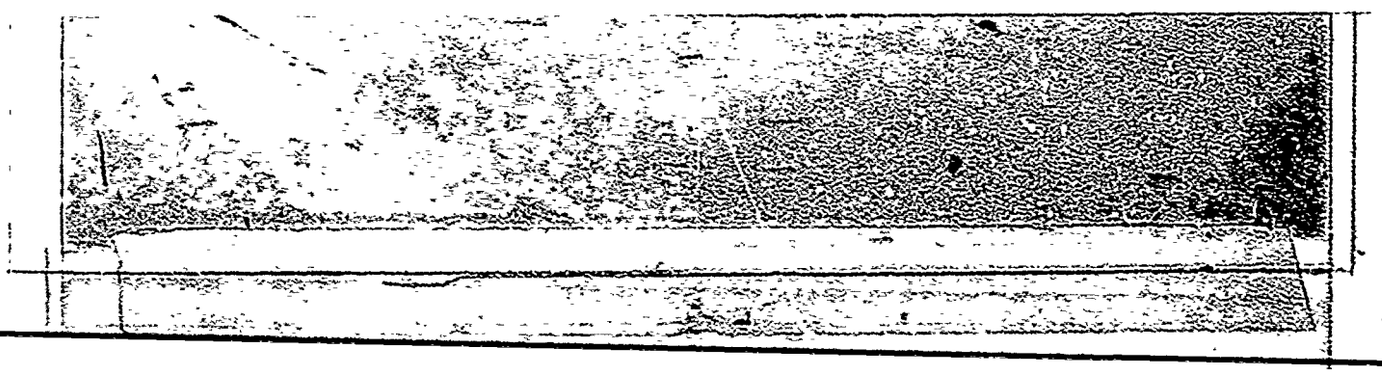
H-46 emergency water landings at sea frequently result in water entry, rollover, and sinking in less than two minutes with loss of the helicopter and occupants. If the aircraft had remained afloat and upright longer, accident statistics indicate 64 lives and 46 aircraft could have been saved. The planned flotation system would permit the H-46 to remain afloat in an upright position for 3 hours and under sea state conditions up to 5 hours. This system consists of four dual compartment polyurethane flotation bags stowed external to the fuselage and inflated in an emergency either manually by the pilot or automatically upon water entry. The inflation medium (nitrogen) will be stored in four 3,000 PSI Kevlar filament-wound pressure vessels.

Development Status: This system is under development by the Naval Air Development Center (NADC), Warminster (RDT&E,N Program Element Number 64213N). RDT&E,N category 6.4 funds have been directed to demonstrate the system in the H-46 and to provide necessary documentation to expedite the production/deployment phase. TECHEVAL (DT-IIB) is scheduled to commence in March 1984; OPEVAL (OT-IIC) in June 1984; and approval for full production (AFP) is planned for September 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	38	$3,881	110	$9,862	124	$11,457	71	$6,940			343	$32,140
O&MN Install.	(2)	$20	(36)	$372	(110)	$1,089	(124)	$1,227	(71)	$703		3,411
O&MN Training		$79										79
APN-6 Spares		$267		$456		$550						1,273
GRAND TOTAL												$36,903

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Improvements to Engine Condition Control System (OSIP 45-85)

Models of Aircraft Affected: CH-46E, UH-46D, CH-46D, HH-46A, NCH-46A

Description/Justification:

This program is a safety of flight item. This aircraft improvement program will incorporate new engine conditions actuators (separate actuators for H-46 A/D and for CH-46E) with an associated wiring change and modification to the engine condition control box (common changes for H-46 A/D and for CH-46E). From July 1973 to Nov 1978, there were 94 mishaps attributable to the engine condition actuator and 37 mishaps attributable to the engine condition control box. In addition from the fleet failure summary report covering the period between July 1981 to June 1982, there were 154 failures of the engine condition actuators (56 failures per 1,000 flight hours) on the H-46 A/D and 144 failures (49 failures/1,000 flight hours) for the CH-46E.

Development Status: Studies and analysis of the engine condition control system have been performed. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,124	161	$2,252	180	$2,655			343	$6,131
O&MN Install.	(1)	$2	(1)	$2	(161)	$147	(180)	$159		310
O&MN Training				$29						29
APN-6 Spares		-0-		$194		$228				422
GRAND TOTAL										$6,892

Installation Data: The kits can be installed by intermediate level or higher. Installation evenly split between intermediate level and Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Multi-Mode Receiver (OSIP 1-86)

Models of Aircraft Affected: CH-46E

Description/Justification:

The Multi-Mode Receiver (MMR) is an airborne landing system receiver which receives and decodes landing guidance information from Pulse Coded Scanning Beam (National Microwave Landing System (NMLS), Joint Tactical Microwave Landing System (JTMS)) and conventional Instrument Landing System ground stations. The TPN-30 is being installed on all LHA's and LPH's. MMR provides the aircraft with the capability of landing at military and civil airfields world-wide without the need for additional equipment.

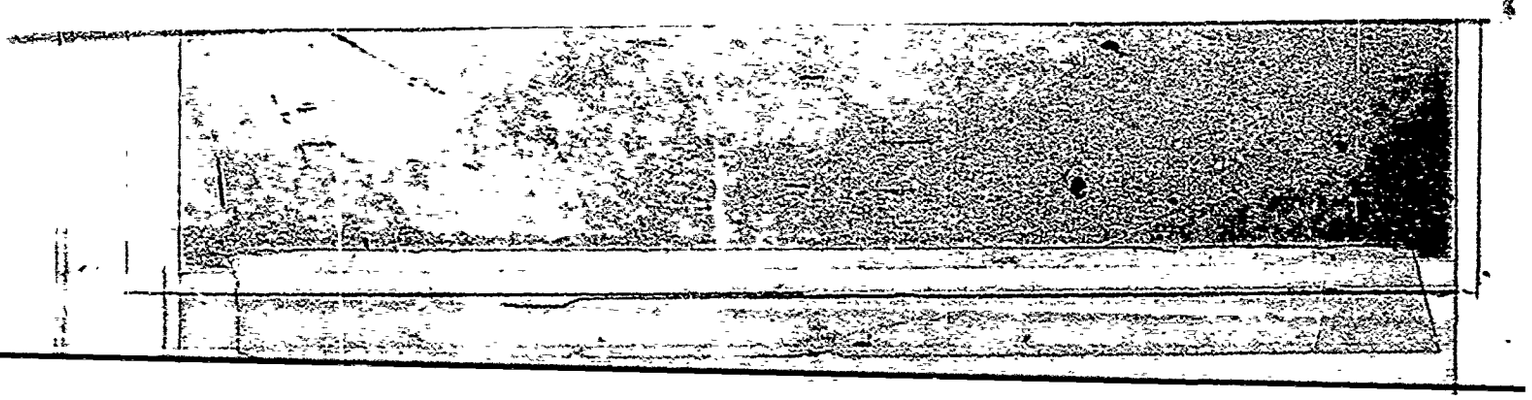
Development Status: The Multi-Mode Receiver is being developed to meet SCR 34-26 (amended) and congressional guidance which directed the multi-function capability. This is an RDT&E program under Program Element 64504N.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1*	$842	108	$10,601	108	$9,235	32	$3,036			248	$23,714
O&MN Install.	(1)	$6			(108)	$624	(108)	$628	(32)	$170		1,428
O&MN Training						$280		$75				355
APN-6 Spares				$2,103		$1,519		$461				4,083
GRAND TOTAL												$29,580

*Prototype.

Installation Data: Kits will be installed by Naval Air Rework Facility (NARF) during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-157(V) IR Jammer (OSIP 69-79)

Models of Aircraft Affected: CH-53A/D

Description/Justification:

The ALQ-157(V) is an infrared jammer that degrades the capabilities of IR homing missiles posing serious threats to tactical helicopters. Current defenses against IR homing missiles (flare decoys and evasive maneuvers) depend on visual detection of the attack. No warning receiver is available. The ALQ-157(V) provides continuous protection. The equipment consists of two externally mounted transmitter units, an internally mounted electronic control unit, and a pilot's control-indicator. This is a joint Army-Navy program for heavy helicopters with the Navy acting as lead service. The basic jammer or a variant will be applicable to USMC CH-46E, CH-53A/D and to Army CH-47C helicopters. The ALQ-157(V) is being manufactured by Xerox Electro-Optical Systems, Pasadena, California.

Development Status: Competitive testing of three EDM's was completed in late FY 1977 with two of the equipments considered capable of meeting the requirements, with improvements to be incorporated in production. Further tests/analysis leading to specifications for production test articles accommodating requirements of all candidate helicopters were completed in FY 1978. In August 1979, a contract was awarded to Xerox Electro-Optical Systems for production of twelve system test models for the ALQ-157. Testing leading to approval for full production (AFP) was completed during the fourth quarter of FY 1983 and approval for full production (AFP) is scheduled for the fourth quarter 1984. The current contract with Xerox contains fixed price options for the first year production.

Project Financial Plan:

	FY 1979		FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$600		$934	1*	$199		$946	60	$3,302	55	$6,879
O&MN Install.							(1)*	$8			(60)	$428
APN-6 Spares										$930		$1,159

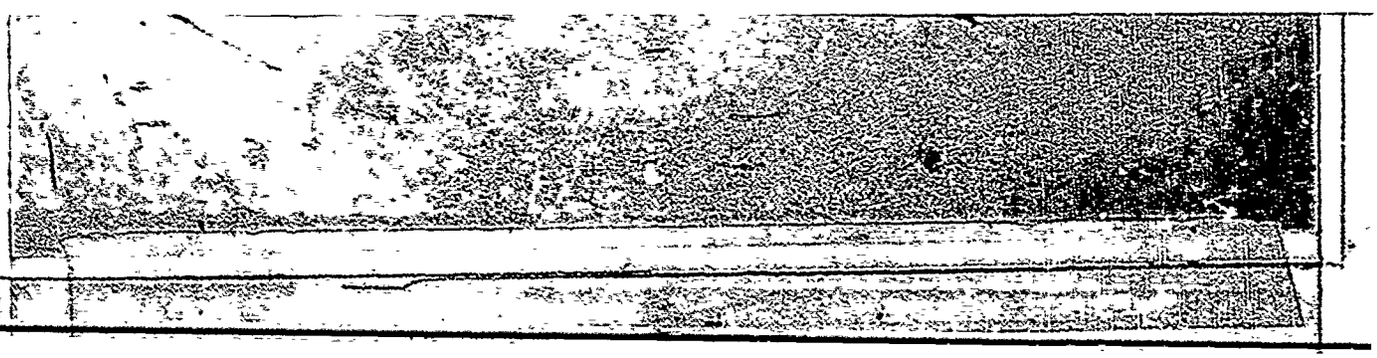
* Prototype.

OSIP 69-79

Project Financial Plan (Cont'd.):

	FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	50	$3,422			166	$16,282
O&MN Install.	(55)	$393	(50)	$357		1,186
APN-6 Spares		$543				2,632
GRAND TOTAL						$20,100

Installation Data: Installation will be accomplished by the Naval Air Rework Facility (NARF) Pensacola during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: LTN-211 OMEGA/VLF Navigation Set (OSIP 46-80)

Models of Aircraft Affected: CH-53E, CH-53D, CH-53A, RH-53D

Description/Justification:

The OMEGA navigation set is a long-range over-water navigation system in use on Navy aircraft. The OMEGA system involves the use of eight ground stations located in various parts of the world. The stations emit low frequency radio signals. A receiver/computer aboard the aircraft interprets these signals and computes latitude and longitude of the aircraft. The OMEGA system is also used by commercial airlines. The current standard Navy OMEGA system is the commercial LTN-211. Due to its commercial airline usage, software modification/updates are accomplished at no cost to the government. Commercial repair facilities are worldwide and Mean Time Between Failure (MTBF) in excess of 1500 hours is currently being achieved. This modification installation also provides for a true airspeed system (TAS) to provide velocity information for the OMEGA navigation set.

Development Status: The LTN-211 OMEGA/VLF is approved for full production.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	6	$423	6	$2,419	96	$7,195	50	$3,619	47	$3,407	34	$2,609
O&MN Install.	(6)	$68			(6)	$81	(96)	$1,123	(53)	$585	(47)	$550
O&MN Training				$255		$50						
APN-6 Spares		$69		$17		$285						

OSIP 46-80

Project Financial Plan (Cont'd):

	FY 1989		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			239	$19,672
O&MN Install.	(34)	$398		2,805
O&MN Training				305
APN-6 Spares				371
GRAND TOTAL				$23,153

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) field team and during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Night Vision Goggles (OSIP 67-82)

Models of Aircraft Affected: CH-53A/D, RH-53D, CH-53E

Description/Justification:

The present and projected threat requires low altitude helicopter operations which cannot now be conducted at night due to a lack of adequate night vision equipment. The third generation Aviation Night Vision Goggles, with appropriate cockpit lighting modifications for compatibility, will provide a limited capability for the flight crew to regain 25-75 percent of the night time.

Development Status: The Helicopter Night Vision System is being developed under RDT&E,N Program Element Number 64213N. The goggles have been developed by the U.S. Army and are referred to as Aviator's Night Vision Imaging Systems (ANVIS) or AVS-6. U.S. Navy approval for full production (AFP) is expected by April 1984. Army production was authorized in September 1982. Quick fix lighting modification for AVS-6 has been developed by the Naval Air Test Center (NATC) and kits are being manufactured by NAC for the H-53. The Quick Fix lighting modification will be installed in 16 CH-53A/D aircraft, 12 RH-53D aircraft and 16 CH-53E aircraft. The Permanent lighting modification will be installed in 155 CH-53A/D aircraft, 23 RH-53D aircraft and 160 C/MH-53E aircraft.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (Quick/Full)	3/0	$719	53/0	$2,311	32/4	$4,107	0/121	$14,337	0/98	$15,870
O&MN Install.							(6)	$139	(121)	$2,797
O&MN Training		$40								
APN-6 Spares						$700		$657		$480

OSIP 67-82

Project Financial Plan (Cont'd):

	FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (Quick/Full)	0/75	$4,011	0/40	$2,265			88/338	$43,620
O&MN Install.	(98)	$2,265	(73)	$1,687	(40)	$924		7,812
O&MN Training								40
APN-6 Spares								1,837
GRAND TOTAL								$53,309

Installation Data: Lighting Mod kits (Quick Fix) will be installed at the organizational level by squadron maintenance personnel. Lighting Mod kits (Permanent) will be installed at the depot level during Standard Depot Level Maintenance (SDLM) or by field teams.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Crashworthy Armored Pilot Seats (OSIP 43-83)

Models of Aircraft Affected: CH-53A, CH-53D, RH-53D

Description/Justification:

Personnel currently survive helicopter crashes only when the crash impact is light and the structural integrity of the seat/restraint system is not compromised. The proposed armored seats will provide improved helicopter crash survivability consistent with direction of the Chief of Naval Operations. Early incorporation of impact protection to meet the dynamic requirements based on USAAVLABS Technical Report 70-22 will save a substantial number of lives currently being lost in helicopter mishaps.

Development Status: Crashworthy crew seats have been tested and approved for full production under the CH-46E CILOP. In addition, crashworthy crew seats are being installed in the U.S. Army Black Hawk and U.S. Navy derivative Sea Hawk.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,882	38	$3,420	51	$4,820	63	$6,366	37	$3,958
O&MN Install.			(2)	$32	(38)	$25	(51)	$34	(63)	$41
O&MN Factory Training				$100						
APN-6 Spares		$189		$531		-0-				

OSIP 43-83

Project Financial Plan Cont'd:

	FY 1988		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			191	$20,446
O&MN Install.	(37)	$24		156
O&MN Factory Training				100
APN-6 Spares				711
GRAND TOTAL				$21,413

1 Kit = 2 seats w/identical armor.

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Crashworthy Fuel System (OSIP 65-84)

Models of Aircraft Affected: CH-53A, CH-53D, RH-53D

Description/Justification:

The crashworthy fuel system is designed to contain fuel spillage during and following a crash or impact with the ground. The system consists of impact resistant fuel tanks and flangeable fittings which resist fracture during crash impacts. The system will also incorporate an increase in ballistic protecti[illegible] the fuel tanks.

Development Status: A crashworthy fuel system has been developed for the CH-53E currently in production. Major segments of the CH-53E system will be interchangeable with the CH-53A/D and RH-53D aircraft and will only require verification.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$2,595	55	$4,533	45	$3,377	58	$4,550	21	$1,744	181	$16,799
O&MN Install.			(6)	$61	(59)	$601	(61)	$622	(55)	$561		1,845
APN-6 Spares				$193		$162						355
GRAND TOTAL												$18,999

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Ground Proximity Warning System (GPWS) (OSIP 67-84)

Models of Aircraft Affected: CH-53A, CH-53D, RH-53D

Description/Justification:

The Ground Proximity Warning System (GPWS) is intended to provide flight crews with audible and visual warnings of imminent inadvertent contact with the ground due to excessive rates of descent, excessive closure rates to terrain, altitude loss, or flight into terrain when not in a landing configuration. The GPWS is very effective in alerting pilots and air crews of impending Controlled Flight Into Terrain (CFIT) danger.

Development Status: The GPWS is a commercially available, off-the-shelf product that meets ARINC standard 594. Flight tests and verification of the GPWS computer software flight profiles for the H-53 aircraft installation have been completed for the CH-53A/D series aircraft.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,291	52	$1,440	68	$1,701	59	$1,508			181	$5,940
O&MN Install.			(2)	$44	(41)	$528	(67)	$863	(71)	$915		2,350
O&MN Training				$140		$75						215
APN-6 Spares		$129		$281		$275						685
GRAND TOTAL												$9,190

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Aircraft Survivability Improvement (OSIP 68-84)

Models of Aircraft Affected: CH-53A, CH-53D, RH-53D, CH-53E

Description/Justification:

The current armor package on the CH-53A/D helicopters weighs 325 pounds. Technology and material advances drastically reduce the ballistic vulnerability of helicopters. The Naval Weapons Center, China Lake, has developed a light weight armor system that weighs approximately 80 pounds. The armor protection includes the vital areas such as the hydraulic reservoir, flight control systems, main pylon, tail and main rotor servos, gear boxes and parts of the fuel system. A Nitrogen Gas Inerting System is also included to reduce the risk of fire damage.

Development Status: Armor systems are already developed or in final development testing at the Naval Weapons Center (NWC) and Sikorsky for the H-53 aircraft.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,433	27	$3,352	49	$6,393	30	$4,140	74	$10,801	76	$11,740
O&MN Install.			(1)	$41	(27)	$1,102	(49)	$1,999	(30)	$1,224	(74)	$3,018
APN-6 Spares				$471		$434		$278				

OSIP 68-84

Project Financial Plan (Cont'd):

	FY 1990		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			257	$37,859
O&MN Install.	(76)	$3,100		10,484
APN-6 Spares				1,183
GRAND TOTAL				$49,526

Installation Data: Fuel system protection will be installed during normal Standard Depot Level Maintenance (SDLM) cycle at the Naval Rework Facility (NARF).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Modified Main Rotor Head Damper (OSIP 47-85)

Models of Aircraft Affected: CH-53E

Description/Justification:

This flight safety change provides for hydraulic isolation of the individual dampers to preclude normal pumping action emptying the reservoir. The change adds an isolation valve and accumulator to each damper circuit to prevent complete loss of system damper fluid. As currently configured, a leak in one damper can cause complete loss of main rotor head damping resulting in a power train induced oscillation manifested as a lateral vibration in the cockpit. One such incident ended in a hard landing accident at Salome, Arizona in 1981.

Development Status: The identical change has been accomplished in the elastomeric rotor head equipped CH-53D. Qualification testing is complete and the change has been validated. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	23	$1,109	22	$790	22	$837	10	$403			77	$3,139
O&MN Install.			(23)	$110	(22)	$101	(22)	$101	(10)	$46		358
O&MN Training		$3										3
APN-6 Spares		$294		$320		$219						833
GRAND TOTAL												$4,333

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) Pensacola field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ARC-182(V) VHF-UHF, AM/FM Transceiver (OSIP 2-86)

Models of Aircraft Affected: CH-53A; CH-53D; RH-53D; CH-53E

Description/Justification:

The AN/ARC-182(V) is a solid state VHF/UHF, AM/FM transceiver planned to be installed in all Navy aircraft. This state-of-the-art VHF/UHF combination radio will provide VHF-FM (30-88 MHz), VHF-AM (108-118 MHz) receiver, UHF-AM (118-156 MHz), UHF-FM (156-174 MHz) and UHF-AM/FM (225-400 MHz) secure voice communications. The AN/ARC-182 will replace existing VHF-AM/FM and UHF-FM radios currently installed in the H-53 helicopters. Production CH-53E incorporation is planned for Lot 8 (FY 85).

Development Status: Approval for full production (AFP) is anticipated in the second quarter FY 1984.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	6	$2,358	87	$7,931	87	$7,640	72	$6,692			252	$25,222
O&MN Install.			(3*)	$16	(87)	$355	(87)	$355	(72)	$294		1,020
O&MN Training				$175								175
APN-6 Spares		$76		$125		$53						254
GRAND TOTAL												$26,671

* 3 Kits installed by contractor during validation

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APR-39A(V)1 Improved Warning Receiver (OSIP 15-86)

Models of Aircraft Affected: CH-53E, RH-53D

Description/Justification:

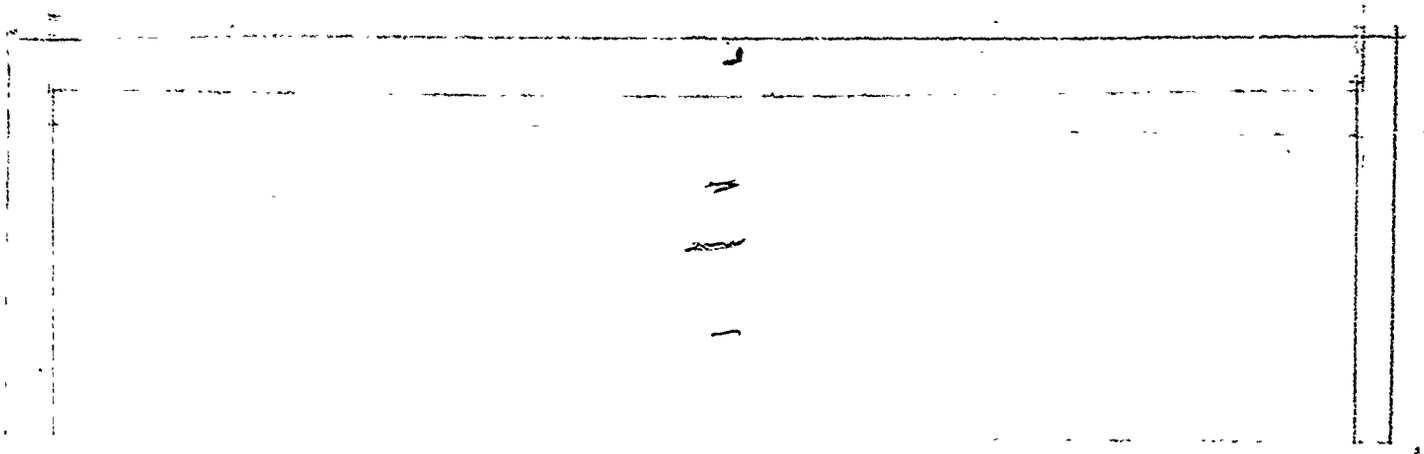
The CH-53E and RH-53D helicopters face an intense radar and infrared directed threat during Airborne Mine Countermeasures. The Improved AN/APR-39A(V)1 provides expanded warning including coverage into the newly utilized millimeter wave region. This coverage is necessary to protect against the modern threat radars.

Development Status: The AN/APR-39(V)1 has approval for full production (AFP) and is being used on Marine Corps helicopters. The improvement program is a joint Army/Navy project with the Army as executive service. A joint memorandum of agreement details individual service responsibilities during the engineering development phase. Engineering development contract was awarded in October 1982. Navy TECHEVAL/OPEVAL will be complete in the third quarter of FY 1985 followed by approval for full production in the first quarter of FY 1986. A draft ACAT III TEMP is being prepared under RDT&E,N Program Element No. 63206N. The improved system has been given the nomenclature AN/APR-39A(V)1.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$1,322	56	$433	50	$409			110	$2,164
O&MN Install.			(4)	$22	(56)	$305	(50)	$272		599
O&MN Training		$92								92
APN-6 Spares		$3		$79		$40				122
GRAND TOTAL										$2,977

Installation Data: Installation is to be accomplished by NARF field modification team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: APR-44 (OSIP 24-82)

Models of Aircraft Affected: UH-1N

Description/Justification:

The APR-44 is an Army developed continuous wave (CW) warning receiver intended for use on helicopters. Total installed weight is approximately 4 pounds, size is 33 cubic inches. The system is required by Marine Corps assault helicopters that currently have no CW warning system. Provisions and APR-44s will be installed in 139 UH-1Ns.

Development Status: Development by the U.S. Army was completed in FY 1979. Army production began in FY 1980 and is continuing. Navy DT-II (TECHEVAL) was completed in the third quarter of FY 1982. OT-II (OPEVAL) test operations completed in August 1983 with report due February/March 1984 followed by approval for full production (AFP) in April 1984.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$140		$158	78	$3,781	61	$2,078			139	$6,157
O&MN Install.							(78)	$962	(61)	$720		1,682
APN-6 Spares						$502		$77				579
GRAND TOTAL												$8,418

Installation Data: Installation will be accomplished by contractor field team on site at Marine Corps facilities on East and West Coasts.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Night Vision (OSIP 68-82)

Models of Aircraft Affected: UH-1N

Description/Justification:

In order to improve tactical weapon effectiveness of the UH-1N aircraft, it must have the capability to operate at night and at low levels. An improved cockpit system must be integrated with night vision goggles to meet fly and fight at night operational requirements for UH-1N aircraft.

Development Status: R&D effort is being conducted by the U.S. Army for night vision capability on a AH-1S aircraft. Approval for full production (AFP) is scheduled for April 1984. This modification will be installed on 139 UH-1N aircraft.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5												
Quick Fix	2	$360	14	$1,451								
Full AVS-6					1	$2,363	29	$11,486	54	$19,208	55	$18,342
O&MN Install.							(1)	$224	(29)	$6,734	(54)	$12,122
O&MN Factory Training		$40						$224				
APN-6 Spares						$208		$1,139		$1,542		$1,625

OSIP 68-82

Project Financial Plan (Cont'd):

	FY 1988 Qty	FY 1988 Cost	TOTAL Qty	TOTAL Cost
APN-5				
Quick Fix			16	$ 1,811
Full AVS-6			139	51,399
O&MN Install.	(55)	$12,346		31,426
O&MN Factory Training				264
APN-6 Spares				4,514
				$89,414

Installation Data: Quick fix kits will be installed at the organizational level by squadron maintenance personnel. Full cockpit mod kits will be installed at the contractor's plant.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Night Vision (OSIP 69-82)

Models of Aircraft Affected: AH-1T/J

Description/Justification:

In order to improve tactical weapon effectiveness of the AH-1T/J aircraft, it must have the capability to operate at night and at low levels. An improved cockpit system must be integrated with night vision goggles to meet fly and fight at night operational requirements for AH-1T/J aircraft.

Development Status: R&D effort is being conducted by the U.S. Army for night vision capability on AH-1S aircraft. Approval for full production (AFP) is scheduled for April 1984.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 - AVS-6										
Quick Fix		$347	32	$1,955	32	$5,274				
Full					2	$1,116	47	$30,910	50	$31,739
O&MN Install.							(2)	$471	(47)	$11,422
O&MN Training		$40						$336		
APN-6 Spares						$340		$988		$3,083

OSIP 69-82

Project Financial Plan (Cont'd):

	FY 1987 Qty	FY 1987 Cost	TOTAL Qty	TOTAL Cost
APN-5 - AVS-6				
Quick Fix			64	$ 7,576
Full			99	63,765
O&MN Install.	(50)	$11,816		23,709
O&MN Training				376
APN-6 Spares				4,411
GRAND TOTAL				$99,837

Installation Data: AVS-6 quick fix kits will be installed at the organizational level by squadron maintenance personnel. Full cockpit mod kit procurement will begin in FY 1984 and will be installed at the contractor's plant.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-136/APR-44 (OSIP 117-83)

Models of Aircraft Affected: AH-1J/T

Description/Justification:

The AN/ALQ-136 is an Army developed high band defensive electronic countermeasures (DECM) system intended for use on helicopters. Total installed weight is 55 pounds and size is 600 cubic inches. The APR-44 is an Army developed continuous wave (CW) warning receiver intended for use on helicopters. Total installed weight is approximately 4 pounds and size is 33 cubic inches. The systems are required by Marine Corps assault helicopters that do not currently have DECM or CW warning systems. Provisions for ALQ-136 and APR-44 will be installed in 55 AH-1J's and 46 AH-1T's.

Development Status: Development of the ALQ-136 and the APR-44 was done by the U.S. Army and was completed in FY 1979. Army production began in FY 1980 and is continuing. Navy DT-II (TECHEVAL) for the APR-44 and ALQ-136 was completed in the third quarter of FY 1982. OT-II (OPEVAL) test operations completed in November 1983 with report due February/March 1984 followed by approval for full production (AFP) in April 1984.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$158	40	$13,053	40	$12,458	17	$3,950			97	$29,619
O&MN Install.					(20)	$330	(40)	$506	(37)	$468		1,304
APN-6 Spares				$2,102		$704						2,806
GRAND TOTAL												$33,729

Installation Data: Installation will be accomplished by contractor field teams.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Radar Altimeter Readout (OSIP 18-84)

Models of Aircraft Affected: AH-1J, AH-1T

Description/Justification:

Safety requirements dictate the need for an altimeter readout in the front seat (cockpit) to enable gunner/copilot to assist the pilot in maintaining proper altitude monitoring during low level flight. This requirement resulted from safety investigations concerning accidents which could have been averted if the copilot had been able to monitor altitude.

Development Status: Development is complete. This effort will provide a parallel altimeter readout in the front cockpit off of the current AN/APN-171 system.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$461	96	$1,690			97	$2,151
O&MN Install.			(1)	$4	(96)	$398		402
O&MN Training		$100						100
APN-6 Spares				$100				100
GRAND TOTAL								$2,753

Installation Data: Installation will be accomplished by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Crashworthy Fuel System (OSIP 19-84)

Models of Aircraft Affected: AH-1T, AH-1J

Description/Justification:

Current attack helicopters do not have crashworthy fuel systems. Addition of the Army developed crashworthy fuel system will increase survivability and protect crews from possible fatal injury. The system consists of new fuel cells which contain a foam substance which is shock and fire resistant

Development Status: This system has been developed by the Army and is in use on the AH-1S helicopter.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,617	30	$2,136	33	$2,075	40	$2,662			104	$ 8,490
O&MN Install.			(1)	$59	(30)	$1,761	(33)	$1,937	(40)	$2,347		6,104
O&MN Training		$50										50
APN-6 Spares				$235								235
GRAND TOTAL												$14,879

Installation Data: Installation will be accomplished by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: HELLFIRE Weapon System (OSIP 20-84)

Models of Aircraft Affected: AH-1J/T

Description/Justification:

The HELLFIRE anti-tank weapon system is being developed by the Army for use on the AAH-64. The Navy/Marine Corps are following the Army's development program under a Joint Development Program. R&D funding is available in FY 1982-1985 for this development. This program will provide for retrofit of the HELLFIRE Missile System into the AH-1J and AH-1T Marine attack helicopters starting in FY 1984. The AH-1J interface/integration will add a new capability. The AH-1T interface/integration will provide HELLFIRE missile system and TOW Missile System capability for greater operational flexibility.

Development Status: The HELLFIRE weapon system development by the Army is complete. Approval for full production (AFP) (ASU) is scheduled for the third quarter of FY 1984 for the AH-1J and FY 1985 for AH-1T.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$7,794	24	$21,735	22	$20,276	34	$25,492	17	$13,174
O&MN Install.			(1)	$148	(24)	$2,848	(22)	$2,582	(34)	$3,991
O&MN Training		$535		$598						
APN-6 Spares				$1,108		$2,052		$2,960		

OSIP 20-84

Project Financial Plan (Cont'd):

	FY 1989		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			98	$ 88,471
O&MN Install.	(17)	$1,995		11,564
O&MN Training				1,133
APN-6 Spares				6,120
GRAND TOTAL				$107,288

Installation Data: Installation will be accomplished by contractor field team on site at East and West coast Marine Corps facilities.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Wire Strike Protection (OSIP 57-84)

Models of Aircraft Affected: UH-1N, AH-1T, AH-1J

Description/Justification:

At present there are no provisions on H-1 aircraft to cut wire obstructions that may be in the flight path of aircraft during low level operations. This modification to the aircraft will provide a wire cutting device above and below the main body of the fuselage that will insure safe flight in the low level environment.

Development Status: The U.S. Army has installed wire cutters on H-1 aircraft. An R&D effort on U.S. Army AH-1S aircraft has been completed. This is a minor modification and approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	3	$460	105	$1,249	105	$1,179	65	$773			278	$3,661
O&MN Install.			(3)	$25	(105)	$133	(105)	$133	(65)	$82		373
APN-6 Spares				$60		$57						117
GRAND TOTAL												$4,151

Installation Data: Installation will be accomplished by Contractor Field Team at East and West Coast locations.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Maneuvering Load Acceleration Capability (OSIP 70-84)

Models of Aircraft Affected: AH-1T, AH-1J

Description/Justification:

Tests conducted during Nap of the earth flying requires rapid maneuvering of the aircraft and without a warning or indication of an approaching dangerous flight load situation the aircraft may be overstressed and/or cause an incident. Maneuvering tests which have been completed indicate that one component, the upper mast boost tube, needs replacement to meet today's maneuvering flight envelope.

Development Status: A minor design change to the existing component is required. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,659	52	$943	47	$536			100	$3,138
O&MN Install.			(1)	$13	(52)	$717	(47)	$592		1,322
O&MN Training				$105						105
APN-6 Spares		$54		$179		$104				347
GRAND TOTAL										$4,912

Installation Data: Installation will be accomplished by drive-in mod at the contractor's facility.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Crashworthy Pilot Seats (OSIP 71-84)

Models of Aircraft Affected: UH-1N

Description/Justification:

Personnel currently survive helicopter crashes only when the crash impact is light and the structural integrity of the seat/resistant system is not compromised. The proposed seats will provide improved helicopter crash survivability consistent with direction of the Chief of Naval Operations. Early incorporation of impact protection to meet the dynamic requirements based on USAAVLABS Technical Report 70-22 will save a substantial number of lives currently being lost in helicopter mishaps.

Based upon a study reported in USAAVLABS Technical Report 67-17 seats using energy attentuation should weigh approximately 62 percent of rigidly mounted seats when providing equal impact protection under given dynamic crash conditions. Because of dynamic overshoot current crew seats which are statically tested for 20g-20g-10g represent approximately one-half the strength provided by crew seats dynamically tested for identical crash conditions.

Development Status: Crashworthy crew seats have been tested and approved for service use under the CH-46E CILOP program. In addition crashworthy crew seats are being installed in the U.S. Army Black Hawk and U.S. Navy derivative Sea Hawk.

OSIP 71-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1*	$740	60	$1,848	60	$1,347	40	$951			161	$4,886
O&MN Install.			(1)*	$36	(60)	$285	(60)	$264	(40)	$176		761
O&MN Training				$105								105
APN-6 Spares				$109		$86						195
GRAND TOTAL												$5,947

* Prototype

Installation Data: Installation will be accomplished by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Night Targeting System (OSIP 23-85)

Models of Aircraft Affected: AH-1T

Description/Justification:

IR and EO sensor developments are providing potential enemies with weapons and vehicles with an effective night and adverse weather combat capability. Marine Corps attack helicopters require similar sensor capabilities in order to conduct effective combat operations in comparable environments. An ongoing Army development will provide a night/adverse weather capability to their AH-1S attack helicopters. This project will adapt the Army systems to the Marine Corps AH-1T.

Development Status: The Army is installing a feasibility model on an AH-1S. Following flight and TOW missile firing tests, two engineering development models will be procured and qualification testing will begin. Approval for full production (AFP) is scheduled for the fourth quarter of FY 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,626	25	$11,400	23	$10,907					49	$23,933
O&MN Install.					(1)	$287	(25)	$5,926	(23)	$5,404		11,617
APN-6 Spares		$148		$2,173		$2,094						4,415
GRAND TOTAL												$39,965

Installation Data: The Night Targeting System will be installed at the contractor's plant.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Position Location Reporting System (PLRS) (OSIP 95-83)

Models of Aircraft Affected: UH-1N

Description/Justification:

PLRS provide field commanders with real time, automatically reported position location data on tactical ground and airborne units/elements. It provides real time position and navigation data to platoon level ground elements and individual aircraft. It can provide secure transfer of communications (UHF).

Development Status: PLRS is a joint U.S. Army/U.S. Marine Corps Joint Service Program with the U.S. Army as procuring agency. Engineering development has been completed with feasibility test program conducted through 1980/81 with ground and airborne elements of Army/Marine Corps. Approval for full production (AFP) is planned for the fourth quarter 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$2,344	60	$7,829	60	$8,201			121	$18,374
O&MN Install.			(1)	$30	(60)	$1,800	(60)	$1,800		3,630
O&MN Training				$183						183
APN-6 Spares		$77		$1,405		$1,472				2,954
GRAND TOTAL										$25,141

Installation Data: Installation will be accomplished by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Navigation System (OSIP 96-85)

Models of Aircraft Affected: AH-1J and AH-1T

Description/Justification:

Requirements to operate at low altitudes and at night dictate the need for a navigation system. The system will consist of the AN/APN-217 doppler and associated cockpit instrumentation.

Development Status: The AN/APN-217 is qualified CFE on the LAMPS MK III helicopters. OT II will be accomplished under the AH-1 HELLFIRE R&D program in October/November 1984. Approval for full production (AFP) is scheduled for December 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$2,243	51	$12,213	51	$12,123			104	$26,579
O&MN Install.			(2)	$100	(51)	$2,550	(51)	$2,550		5,200
APN-6 Spares				$209		$209				418
GRAND TOTAL										$32,197

Installation Data: Installation will be by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: H-1 Electronic Warfare Equipment (OSIP 97-85)

Models of Aircraft Affected: HH-1K

Description/Justification:

The Electronic Warfare Equipment will consist of the APR-39A(V)1, ALE-39, ALQ-144 and APR-44 which are Army developed high band Defensive Electronic Countermeasures (DECM) systems intended for use on helicopters. The systems are required by Navy attack helicopters that currently have no DECM systems. Provisions for the EW equipment have been installed in AH-1Js, AH-1Ts and UH-1Ns.

Development Status: Navy DT-II (TECHEVAL) and OT-II (OPEVAL) tests have been completed. No approval for full productior (AFP) is required for this program. The EW equipment is currently in use in H-1 helicopters.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,410	7	$2,497	7	$2,490			15	$6,397
O&MN Install.			(1)	$26	(7)	$184	(7)	$184		394
O&MN Training		$52								52
APN-6 Spares				$60		$56				116
GRAND TOTAL										$6,959

Installation Data: Installation will be by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Crashworthy Fuel System (OSIP 98-85)

Models of Aircraft Affected: HH-1K

Description/Justification:

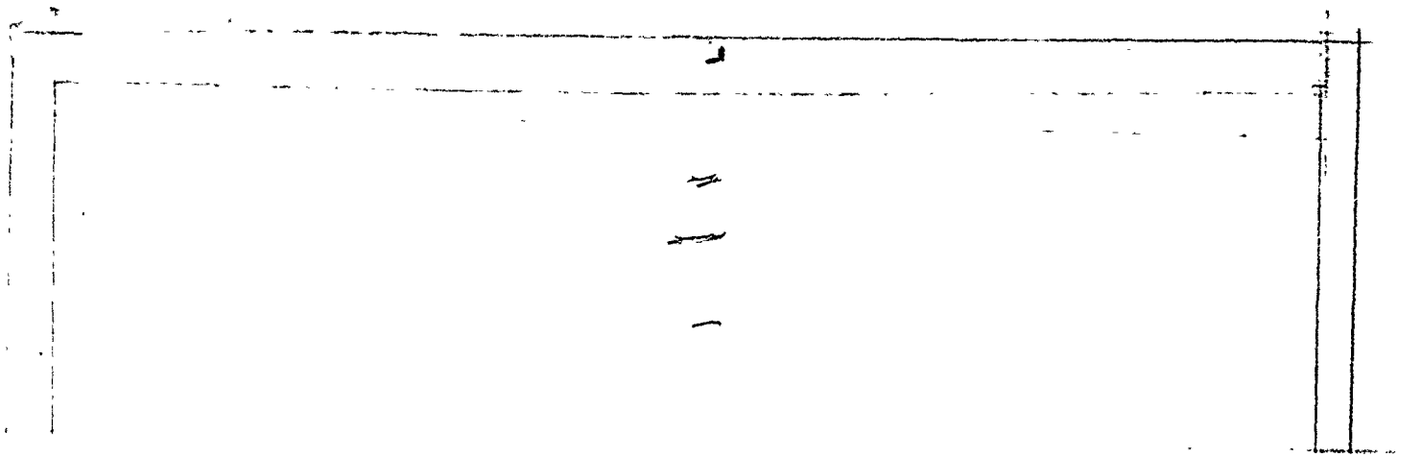
Current attack helicopters do not have crashworthy fuel system. Addition of the Army developed crashworthy fuel system will increase survivability and protect crews from possible fatal injury. The system consists of new fuel cells which contain a foam substance which is shock and fire resistant.

Development Status: This system has been developed by the Army and is in use on the AH-1S helicopter.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,376	7	$746	7	$624			15	$2,746
O&MN Install.			(1)	$32	(7)	$220	(7)	$220		472
O&MN Training		$10								10
APN-6 Spares		$32								32
GRAND TOTAL										$3,260

Installation Data: Installation will be accomplished by contractor field team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Night Vision (OSIP 39-85)

Models of Aircraft Affected: HH-1K

Description/Justification:

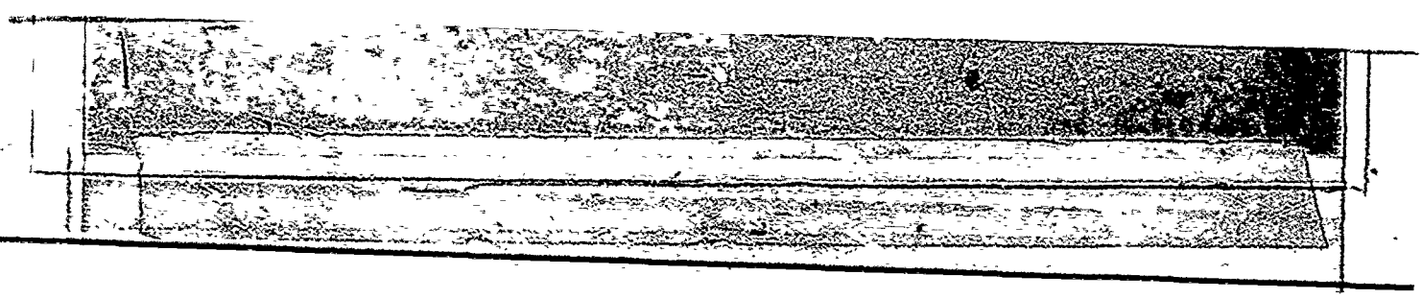
In order to improve tactical weapon effectiveness of the HH-1K aircraft, it must have the capability to operate at night and at low levels. The improved cockpit system must be intergrated with night vision goggles to meet fly-and-fight-at-night operational requirements for HH-1K aircraft.

Development Status: R&D effort is being conducted by the U.S. Navy for night vision capability on H-1 aircraft. This modification will be installed on 16 HH-1K aircraft. Approval for full production (AFP) is planned for April 1984 for H-1 service helicopters.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,152	7	$695	7	$632			15	$2,479
O&MN Install.	(1)	$21			(7)	$147	(7)	$147		315
APN-6 Spares		$48		$8		$8				64
GRAND TOTAL										$2,858

Installation Data: Installation of lighting kits will be by contractor field teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Tail Pylon/Drive Train Improvements (OSIP 149-83)

Models of Aircraft Affected: SH-2F

Description/Justification:

The present aluminum pylon, aluminum/fiberglass horizontal stabilizer, and power train evolved from the original UH-2 A/B single-engine helicopter via add-on/beef-up modification. With growth of the H-2, changing loads and vibratory conditions have led to fatigue failures in the tail rotor gear box, corrosion in the attachment shaft of the horizontal stablizer and wear and corrosion in the flapping and pitch bearings. This program will eliminate the 50-hour inspection requirement for fatigue cracks in the tail rotor gear box attachment lugs. The redesign of the housing and the use of stronger aluminum to replace the present magnesium will provide greater fatigue and corrosion resistance. A new forged aluminum tail rotor gearbox mounting rib will also be installed to provide a fatigue resistant structure. The changes to the flapping and pitch bearings will extend the scheduled maintenance time from 5 hours to an expected 15 to 20 hours and prevent binding in the tail rotor controls. The redesign of the horizontal stabilizer mount and associated isolator bearings will alleviate the sticking in the stabilizer altogether.

OSIP 149-83 is divided into four kits:

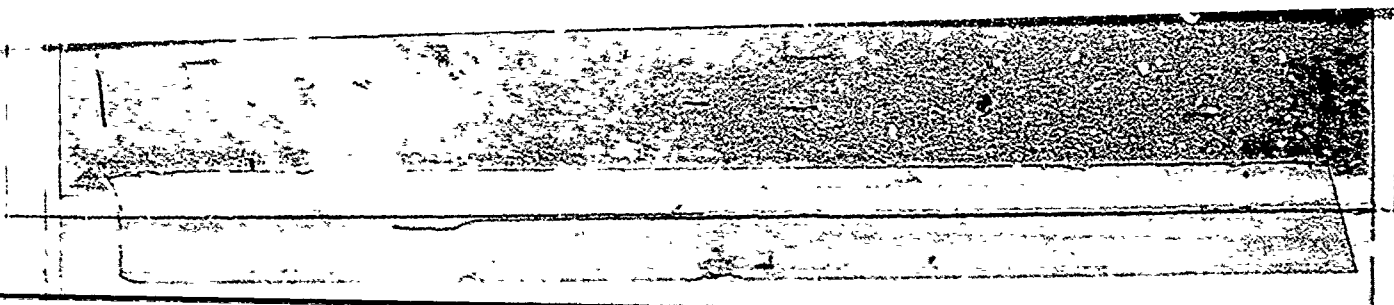
Kit A - Horizontal stabilizer attachment redesign.

Kit B - Redesign of the flapping and pitch bearings.

Kit C - Redesigned aluminum tail rotor gearbox and forged aluminum tail rotor gearbox mounting rib.

Kit D - Minor Main Gearbox Improvements.

The plan was subdivided into separate elements because although the overall objective of the efforts are interrelated, each element can be developed separately.



OSIP 149-83

Description/Justification (Cont'd):

The main gearbox improvements included in the program are a result of the ongoing SH-2F Readiness Improvement R&D program (PE 64219N). Minor changes can be incorporated in the main gearbox now, giving an immediate increase in R&M. These include improved main rotor shaft lower oil seal, improved tail rotor drive output shaft and forward bearing lubrication. The remaining long term main gearbox improvements are covered under OSIP 21-86.

Development Status: This OSIP is subdivided into separate kits because although the overall objective of each is interrelated, they are being developed separately under the RDT&E Program (PE 64219N, W1442-AS). Kit A - Horizontal Stabilizer Shake testing will be completed by February 1984. Kit B - Initial Fatigue testing and whirl testing will be completed by April 1984. Kit C - Fatigue testing will be completed by April 1984. Kit D - Bench tests and Flight Evaluations completed in October 1983. Approval for full production (AFP) is not required for any kit.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$221	144	$2,741	306	$3,675	326	$4,856	112	$1,664		
O&MN Install.**						$273		$303		$353		$173
APN-6 Spares		$67		$300		$2,966		$3,673		$2,911		

	FY 1989		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			888*	$13,157
O&MN Install.**		$70		1,172
APN-6 Spares				9,917
GRAND TOTAL				$24,246

* Quantity represents kits vice aircraft.
** Costs include installation kits and spares.

Installation Data: The modification kits will be incorporated during component rework/overhaul Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: DC Fuel Quantity System and 100-Gallon Auxiliary Tanks (OSIP 72-84)

Models of Aircraft Affected: SH-2F

Description/Justification:

The fuel quantity system presently used is an AC system with moisture-sensitive shielded cables from the tank units to the bridge amplifier. The tank units are sensitive to water-saturated fuel, which also affects amplifier adjustments. The quantity unit itself experiences binding and internal failures. These problems lead to erroneous indication of fuel quantity remaining in one or more fuel tanks.

Unauthorized practices by fleet personnel, such as pulling various fuel transfer circuit breakers and waiting for a fuel trouble caution light to appear, bypass the normal fuel quantity indicating system. This airborne "trouble shooting" and forced transfer technique is questionable at best. Current Navy Maintenance Support Office (NAMSO) data indicates that approximately 190 maintenance actions per month are being documented consuming over 850 maintenance manhours per month to correct fuel quantity system discrepancies. The present SH-2F equipped with a 60-gallon auxiliary tank and one MK 46 torpedo has 1.4 hours time on station at 35NM combat radius for the ASW mission; when two 60-gallon tanks are carried on station, time is approximately 2.0 hours. This relatively short time on station inhibits the operational capability of the total LAMPS MK I as an effective ASW system.

A replacement system utilizing state-of-the-art DC circuitry and 100-gallon auxiliary tanks is recommended. All components of the AC system will be replaced with DC units connected with conventional unshielded wiring. The indicator will use a DC motor thus eliminating the need for gearing which is a high failure component in the present system. The maximum take-off weight will be increased to 13,500 pounds to take full advantage of the 100-gallon auxiliary tank which will increase on station time at 35 NM to 1.9 hours with one tank or 2.8 hours with two tanks. The SH-2F has been demonstrated by Kaman pilots at 13,500 pounds gross weight. The limited amount of flight testing required to complete the 13,500 pound qualification program will be accomplished under the FY 1982 new buy in April 1984.

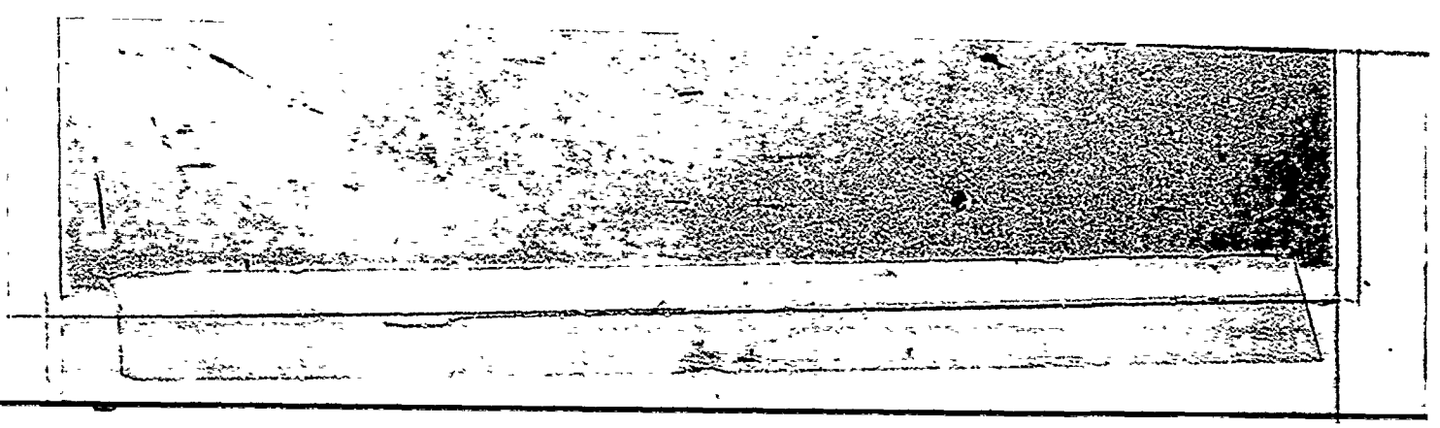
OSIP 72-84

Development Status: Flying qualities, structural demonstration, and hard landings have been completed at 13,500 pounds. Static strength tests of the auxiliary tank support backup structure are ongoing. Form, fit, function and jettison tests of the auxiliary tanks have been conducted. Prototype testing of full quantity system will be performed by the Naval Air Test Center in April 1984. Approval for full production (AFP) is not required. This change has been approved for FY 1983 production incorporation.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	27	$1,730	36	$1,861	46	$2,532					109	$6,123
O&MN Install.					(27)	$573	(36)	$764	(46)	$976		2,313
APN-6 Spares		$745		$818								1,563
GRAND TOTAL												$9,999

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM), field mod team, or drive-in-modification.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: ALR-66 (OSIP 76-84)

Models of Aircraft Affected: SH-2F

Description/Justification:

The ALR-66 is the SH-2F Electronic Support Measure (ESM) system used in the LAMPS MK I mission of Anti-Ship Surveillance and Targeting (ASST) and is currently replacing the antiquated ALR-54 ESM system. There are currently 75 operational ALR-66 systems installed in Fleet SH-2F's. A March 1981 report from the Commander, Operational Test and Evaluation Force (OPTEVFOR) cited deficiencies in the production system that, if not corrected, cause serious degradation in performance. Enhanced operational effectiveness of the ALR-66 is required. The outdated threat emitter library problem will be resolved through the introduction of a programmable Electrically Alterable Read Only Memory (EAROM) that will eliminate the need for future hardware changes. This program also includes provisions to procure 20 complete ALR-66 systems with the modifications installed to complete the outfitting of the Fleet SH-2F's.

Development Status: Approval for full production (AFP) was granted in October 1983. Software support will be provided by Pacific Missile Test Center (PMTC) commencing in FY 1984.

OSIP 76-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	40/10	$3,190	43/10	$2,825			83/20*	$ 6,015
O&MN Install.**			(69)	$433	(151)	$599		1,032
O&MN Training				$107				107
APN-6 Spares		$1,009		$2,431				3,440
GRAND TOTAL								$10,594

* 83 Avionics kits; 20 new systems.
** Includes funding to modify 137 existing spare computers.

Installation Data: Installation will be accomplished by a contractor turnaround program. Includes funding to modify a total of 240 systems (103 installs/137 spares).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: ASN-123 Tactical Navigation Set Improvement (OSIP 60-85)

Models of Aircraft Affected: SH-2F

Description/Justification:

The current configured ASN-123 installed in the SH-2F and SH-3H helicopters is memory saturated and unable to accept tactical software changes or additions. The requirements for TACNAV software additions must increase to keep the system tactically current and operationally ready. At the same time, commonality of software between the H-2 and H-3 must remain to keep software costs and numbers of changes to a minimum.

This modification increases the tactical capability of the ASN-123 by the incorporation of hardware improvements to permit greater flexibility in software programming. Memory will increase from 32K to 128K, processor speed (clock speed) will increase, and the capability of processing 15 sonobuoy launch tube signals will be added. The increased memory size will provide critically needed capacity to incorporate 59 outstanding software changes of which 8 are safety and 16 are mission essential.

Included in this change is a shield which will eliminate an EMI problem.

Development Status: New solid state memory has completed formal qualification testing as part of the EA-6B Digital Display Group installation. Approval for full production (AFP) is not required. This is a joint program between H-2 and H-3 aircraft. A majority of the nonrecurring costs are provided by the SH-2F new production program.

OSIP 60-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	50	$4,045	50	$4,160			100	$ 8,205
O&MN Install.			(50)	$1,142	(50)	$1,142		2,284
O&MN Training		$150						150
APN-6 Spares		$2,269		$3,334				6,603
GRAND TOTAL								$17,242

Installation Data: Contractor installation of AVC retrofit kits will be accomplished the same way as production systems, by contractor component rework program. AFC will be accomplished at organizational level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Torpedo Depth Control (OSIP 127-85)

Models of Aircraft Affected: SH-2F

Description/Justification:

The primary ASW weapon carried by the SH-2F is the MK-46 ASW torpedo. The operation and initial search depth for the torpedo must currently be selected prior to launch. Proper selection of these two parameters is critical to the success of the attack. An airborne torpedo presetter will enable the aircrew to select/modify the operating mode and initial search depth parameters in real time as tactical information and situation dictate, thereby increasing the probability of a successful attack.

An operational requirement (OR) submitted to CNO endorsed by CINCLANFLT states that positive near and long term impact on ASW readiness which the torpedo presetter represents, warrants maximum support and earliest possible IOC. The SH-2F is the only remaining US airborne ASW platform without this capability. The torpedo presetter incorporates provisions which will be required for future compatibility with the ALWT.

Development Status: The Torpedo presetter to be used by the SH-2F is under development by Naval Avionics Center and is partially funded by NAVSEA. The FY 1985 effort includes design and development for installing AFC kit, validation, verification and test. Approval for full production (AFP) for the presetter is anticipated in the fourth quarter of FY 1985.

OSIP 127-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	3	$910	16	$2,279	53	$3,233	48	$3,100			120	$ 9,522
O&MN Install.			(3)	-0-	(11)	$112	(47)	$479	(59)	$602		1,193
O&MN Training				$250								250
APN-6 Spares				$1,304		$2,039		$1,118				4,461
GRAND TOTAL												$15,426

Installation Data: Installation will be accomplished at the depot level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Composite Main Rotor Blade (OSIP 20-86)

Models of Aircraft Affected: SH-2F

Description/Justification:

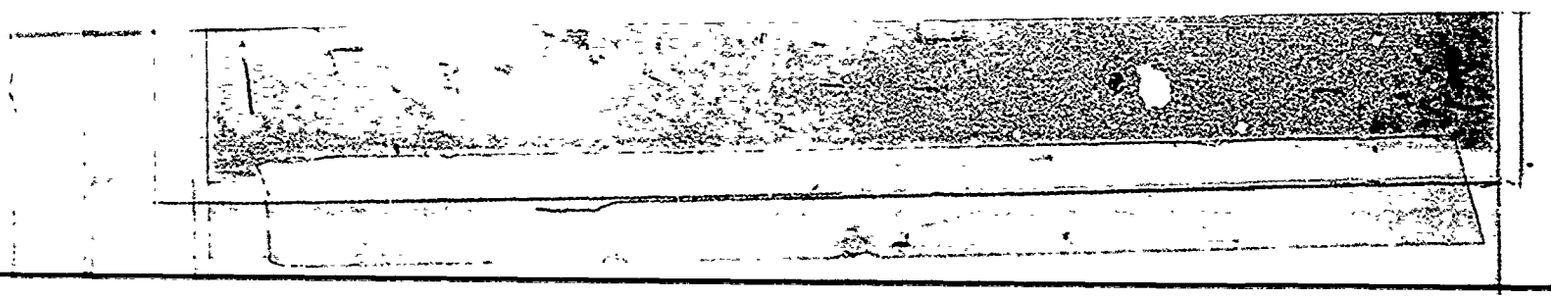
The composite main rotor blade for the SH-2F is a product of composite material applications, particularly that for rotor blades such as the circulation control rotor for the Navy and the AH-1 improved main rotor blade which is now in production for the Army. Although the new blade is composite construction, it will be completely compatible with the existing SH-2F rotor system and will retain the outstanding flight characteristics that the -101 rotor presently exhibits. Substantial life cycle cost savings will accrue to the Navy due to the elimination of corrosion susceptible materials, the extended fatigue life (approximately the 10,000 hours presently approved for AH-1 blade), and the improved reliability and outstanding field repairability that is inherent in composite rotor blades. These features have already been demonstrated through an extensive test program and initial field use of AH-1 blades.

Development Status: Engineering and development started in FY 1982 as part of the SH-2F Readiness Improvement Program (RIP). RDT&E,N Program Element Number 64219N refers. Flight testing will commence August 1984. Navy certification testing will be completed in April 1985.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	50	$19,431	51	$18,257	23	$8,681	124	$46,369
O&MN Install. "O" Level		-0-						-0-
O&MN Training		$175						175
APN-6 Spares		$6,600		$8,496		$9,562		24,658
GRAND TOTAL								$71,202

Installation Data: Installation will be accomplished at the organizational level. Retrofit includes 42 new aircraft.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Main Gear Box Improvements (OSIP 21-86)

Models of Aircraft Affected: SH-2F

Description/Justification:

The improvements to the main gear box will increase the Time Between Overhaul (TBO), reduce overhaul cost, and increase reliability. This will result in less frequent gear box removals and increase operational readiness for the SH-2F. There are five areas where improvements will be made to the gear box. They are planetary gear reduction system, upper housing/ring gear fasteners, azimuth support spline, oil filtration and oil survivability system.

Development Status: Engineering and development started in FY 1982 as part of the SH-2F Readiness Improvement Program (RIP). RDT&E,N Program and Element Number 64219N refers. Bench testing will commence in February 1984. All testing will be completed early in FY 1985.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	63	$4,356	64	$4,184			127	$ 8,540
O&MN Install.*			(90)	$587	(97)	$633		1,220
O&MN Training		$40						40
APN-6 Spares		$1,798		$1,684				3,682
GRAND TOTAL								$13,482

Installation Data: Installation of kits in gearboxes will be accomplished during the Component Rework program at NARF Pensacola. *Total installation includes gearboxes for 127 aircraft and 60 spares.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALE-39 Countermeasures Dispensing System (OSIP 22-86)

Models of Aircraft Affected: SH-2F

Description/Justification:

The primary missions of the SH-2F LAMPS MK I system are Anti-Submarine Warfare (ASW), and Anti-Ship Surveillance and Targeting (ASST). Accomplishing the ASST mission requires the helicopter to loiter at specific altitudes and airspeed and detect the various threats through either active or passive means. Specific Operational Requirement (SOR 21-81) states that the helicopter will alert the ship of imminent missile attack or missile firing platforms so the ship may take appropriate action. When conditions warrant, it is desired that LAMPS be capable of being specially configured to counter the threat through the use of decoy measures, such as chaff, flares, etc.

Currently the SH-2F has interim clearance to carry and operate the AN/ALE-37A chaff dispenser mounted on the store station (MK 8 MOD 6 Shackle). This installation prohibits the carrying of external fuel tanks on that store thereby severely decreasing the range and on station time of the helicopter.

The AN/ALE-39 is a compact, light and efficient system that will be permanently mounted to the airframe, freeing up the external store station. This system will greatly increase aircraft survivability.

Development Status: The ALE-39 system has approval for full production (AFP) and will be provided to contractor as GFE. Preliminary flight tests have been conducted at NATC. Both Contractor and additional Navy flight test will be performed prior to incorporation.

OSIP 22-86

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	7	$1,386	52	$1,274	49	$1,246	8	$216			117	$4,122
O&MN Install.			(2)	$12	(40)	$229	(55)	$315	(20)	$114		670
O&MN Training		$314										314
APN-6 Spares		$108		$210		$208		$36				562
GRAND TOTAL												$5,668

Installation Data: Installation will be accomplished at the depot level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: SH-3 Service Life Extension (OSIP 85-83)

Models of Aircraft Affected: SH-3H/SH-3G/SH-3D

Description/Justification:

The SH-3 SLEP program will extend the service life of the SH-3 past the year 2000. This program addresses H-3 airframe items that are unreliable or in a severely degraded material condition. Conversion from SH-3D to the SH-3H configuration is also included for the first 26 SH-3D aircraft to undergo SLEP. This modification will include extensive rework of the dynamic components, correction to areas of severe airframe corrosion, installation of a Bifilar Head to reduce dynamic vibrations in the airframe, modified webbing in the aircraft structure to alleviate cracking, rewiring of the aircraft electrical system, and installation of structure and kits for crash attenuating seats. This program is comprised of three kits: Kit A is a basic airframe SLEP kit; Kit B consists of rotor head improvements, bifilar, crashattenuating seats (in the case of crash attenuating seats, only 129 aircraft will be outfitted under this program, the remaining aircraft will be outfitted under OSIP 23-84), and ASE Improvements. Kit B will be incorporated in all H-3 aircraft; kit C contains the hardware required for SLEP and conversion of SH-3D to SH-3H group E configuraton.

Development Status: Contractor testing of critical components will be performed on a validation aircraft. Government testing at NATC will be performed to verify flight characteristics. No OT&E required.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$24,320		$33,289		$68,251		$80,352		$32,963
O&MN Install.		$771		$783		$1,746		$16,941		$26,672
APN-6 Spares		$2,958		$2,019		$8,016		$4,612		$4,253

OSIP 46-83

Project Financial Plan (Cont'd.):

	FY 1988		FY 1989		FY 1990		FY 1991		FY 1992		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$59,603		$68,774		$60,[illegible]					*	$388,225
O&MN Install.		$19,751		$14,462		$31,331		$43,387		$27,719		183,567
APN-6 Spares		$4,088		$737		$566						27,249
GRAND TOTAL												$599,041

* Kit A (103), Kit B (200), Kit C (26). Total quantity of kits is 329.

Installation Data: Installation of Kit A will be accomplished by the winner of a competitive bid. Installation of Kit B will be accomplished during component rework and Standard Depot Level Maintenance (SDLM). Installation of Kit C will be accomplished by the prime contractor.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: VH-3D Cockpit/Avionics Update (OSIP 135-83)

Models of Aircraft Affected: VH-3D

Description/Justification:

The VH-3D helicopter provides world wide executive transportation for the President of the United States, Vice President, Foreign Heads of State and others as directed by the military office of the White House. The capability of the VH-3D to support the White House Emergency Plan (WHEP) in other than VMC conditions is marginal. The VH-3D capability to communicate consists of line-of-sight UHF and VHF radios only. The planned addition of a Presidential communication capability by the White House Communication Agency (WHCA), crypto communication capability, H.F. communication, and additional Secret Service radio communication equipment requires reduction in weight and volume of existing VH-3D aircraft equipment to prevent a degradation in passenger load or range. Additionally, execution of the WHEP requires the aircraft be equipped with all weather capabilities to include radar and on-board navigation equipment.

Development Status: The Naval Air Development Center (NADC) is currently involved in a study to update the VH-3D avionics systems with the intention of EMP hardening selected sub-systems. Hardware selection was completed in FY 1982. Laboratory facility completion and aircraft installation design will be completed in the second quarter FY 1984. Laboratory integration and aircraft configuration will be completed in FY 1984; aircraft flight checks to commence in the fourth quarter of FY 1984.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$2,000	1	$6,697	4	$17,058	3	$13,625	3	$13,600	11	$52,980
O&MN Install.						$1,734		$2,141		$1,734		5,609
O&MN Training				$250		$500		$500		$500		1,750
APN-6 Spares				$1,160		$2,212		$2,347				5,659
GRAND TOTAL												$65,998

Installation Data: Installation will be accomplished during normal Special Periodic Aircraft Rework (SPAR).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Crash Attenuating Seats (OSIP 23-84)

Models of Aircraft Affected: SH-3H, SH-3D, SH-3G, HH-3A, UH-3A, VH-3A

Description/Justification:

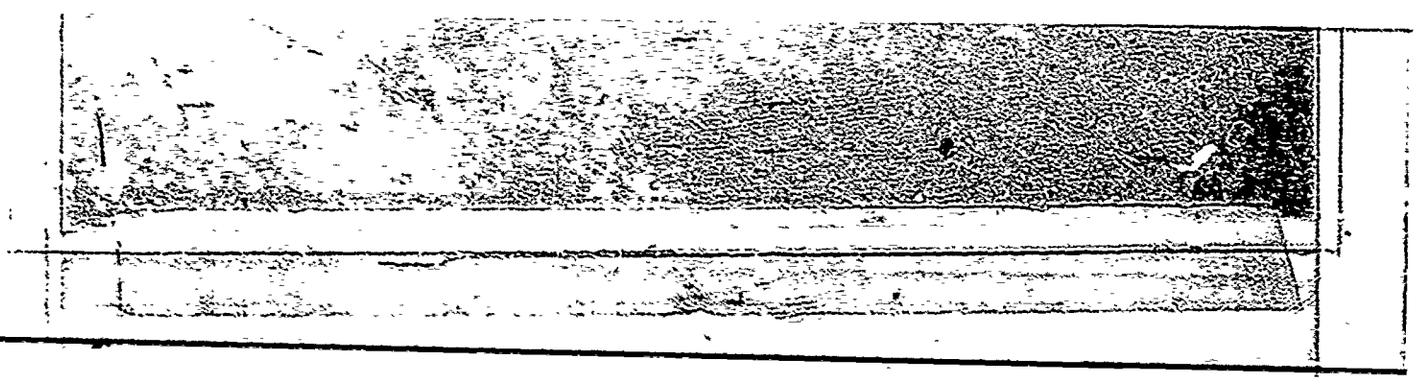
Personnel currently survive helicopter crashes only when the crash impact is light and the structural integrit · of the seat/restraint system is not compromised. The proposed seats will provide improved helicopter crash survivability consistent with direction of the Chief of Naval Operations. Incorporation of impact protection to meet the dynamic requirements based on USAAVLABS Technical Report 70-22 will enable crew members to survive 20g-20g-10g crash loads.

Development Status: H-3 crash attenuating crew seats are being designed and qualified under the Service Life Extension Program (SLEP). An FY 1983 contract has been placed for nonrecurring engineering.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	10	$1,511	66	$2,544			76	$4,055
O&MN Install.			(10)	$8	(66)	$54		62
O&MN Factory Training		$40						40
APN-6 Spares		$86		$314				400
GRAND TOTAL								$4,557

Installation Data: Installation will be accomplished at the Naval Air Rework Facility (NARF) concurrent with Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Main Gear Box Improvements (OSIP 77-84)

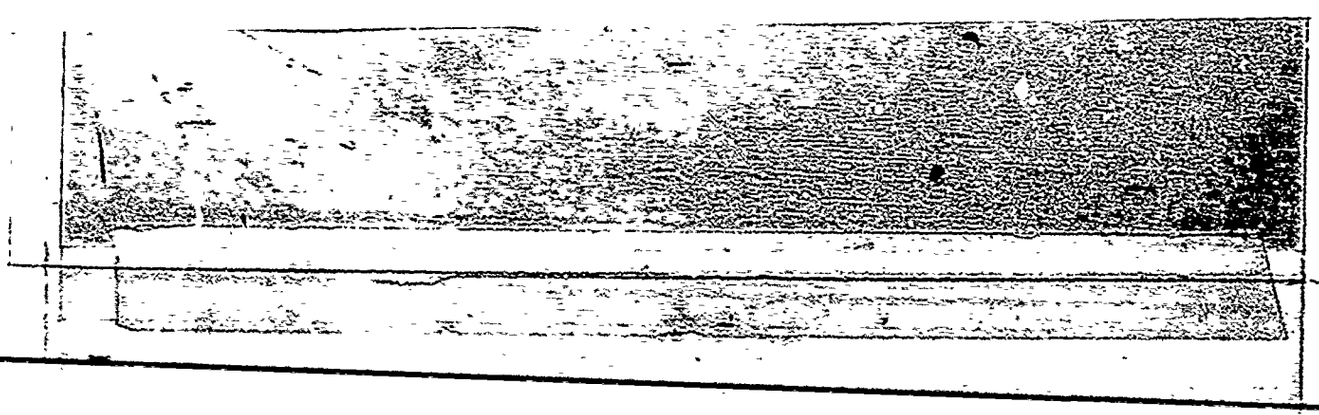
Models of Aircraft Affected: SH-3H, SH-3D, VH-3A, HH-3A, SH-3G

Description/Justification:

The H-3 Main Gear Box (MGB), which has a Maximum Operating Time (MOT) of 1800 hours, has a Mean Time Between Failure (MTBF) of only 450 hours. The primary reason for the low MTBF is the premature failure of various subcomponents. A 3-year average shows one-third of early removals are for metal contamination and one-third for Free Wheel Unit (FWU) failures. Catastrophic failures of MGB subcomponents have been suspected causes for the losses of five (5) Navy and two (2) Air Force H-3 Helicopters between 1978 and 1981. Also during that three year period there were 34 additional mishaps which necessitated the premature removal of MGB's and were potential catastrophic failures. This program proposes improvements that will distinctly improve MGB reliability service life and eliminate the present safety of flight hazards responsible for the 41 incidents described. MTBF will improve by 200 percent and Maintenance Manhours will decrease by 25 to 50 percent. Improvements include:

1. Freewheel Unit Redesign - A new bearing cage design will eliminate roller bearing and cam shaft damage during accessory drive operation, the major cause of FWU damage and failures.
2. Lubrication System Improvements - Improved subcomponent materials, increased capacity lubrication pumps, increased efficiency oil cooling, and dramatically improved filtration will significantly reduce current problems of oil starvation, high-temperature and, most importantly, contamination of oil which can, and does, lead to catastrophic MGB failures.
3. Subcomponent Improvements - A group of critical subcomponents, such as gimbel ring bushings and input pinion gears, which have been shown to cause MGB failures and dramatically effect MGB reliability and service life, are slated for improvement.

Development Status: The development is being funded by the AERMIP Program, Program Element Number 25633N, W1041-SL. Approval for full production (AFP) is not required. Primary Military Qualification Tests (PMQT) was completed in January 1984.

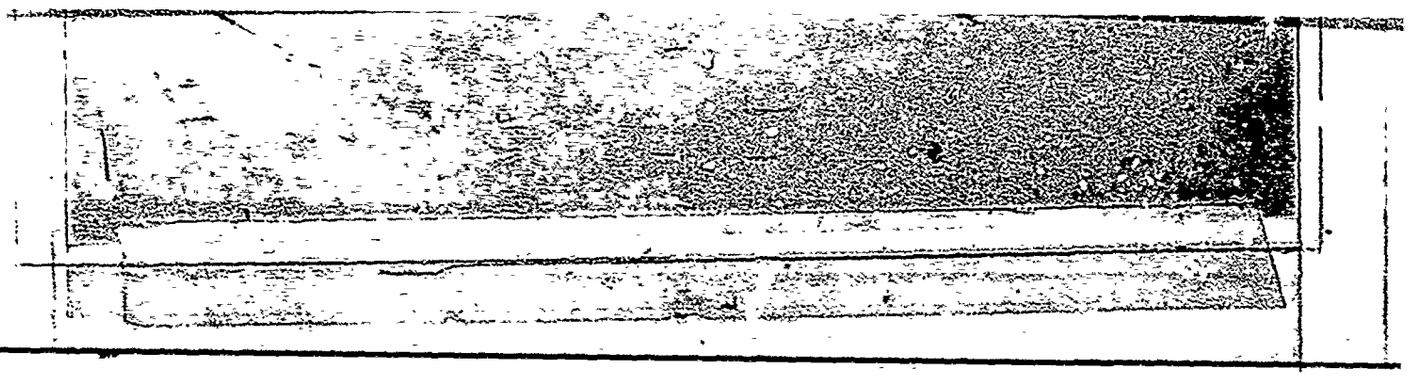


OSIP 77-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	62	$11,795	90	$16,449	45	$8,135					197	$36,379
O&MN Install.					(62)	$739	(90)	$1,025	(45)	$470		2,234
APN-6 Spares		$6,016		$11,365		$7,374						24,755
GRAND TOTAL												$63,368

Installation Data: Installation will be accomplished by the contractor during a component turnaround program.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: H-3 Helicopter Emergency Egress Lighting System (HEELS) (OSIP 54-85)

Models of Aircraft Affected: SH-3H, SH-3D, UH-3A, SH-3G, HH-3A, VH-3A

Description/Justification:

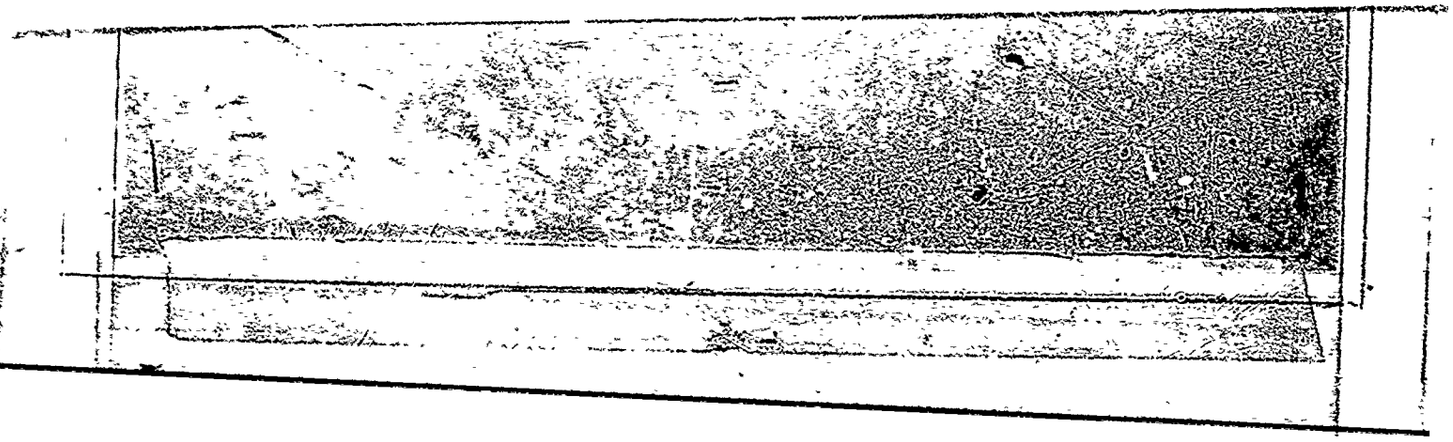
HEELS is a lighting system that will provide the H-3 helicopter with adequate life saving internal illumination of exits for successful emergency underwater escape. Numerous Fleet messages have stated the need for egress orientation lights. This modification is required to avoid fatalities by drowning following a helicopter ditching.

Development Status: The HEELS Program is to be accomplished in four phases; (I) Specification Development; (II & III) Design/Evaluation; (IV) Adaptive Installation. Phase I was completed in September 1982. Phase I and II are being funded by RDT&E (P.E. 63216N) funds. Phases III and IV will be funded by this program. Since the HEEL System involves no major changes to the aircraft, approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	120	$1,739	81	$904			201	$2,643
O&MN Install.	(10)	$15	(96)	$138	(95)	$137		290
O&MN Training		$100						100
APN-6 Spares		$65		$45				110
GRAND TOTAL								$3,143

Installation Data: Concurrent installation during Standard Depot Level Maintenance (SDLM) and NARF Field Team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: H-3 VHF Comm/NAV Equipment (OSIP 55-85)

Models of Aircraft Affected: SH-3H, SH-3D, UH-3A, SH-3G, HH-3A, VH-3A

Description/Justification:

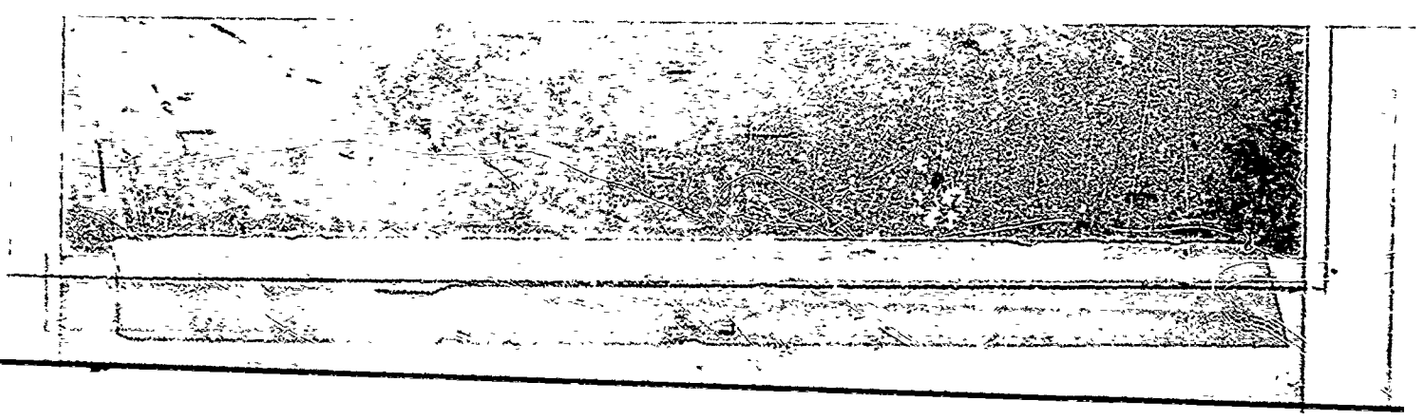
CNO operational requirement established for helicopter VHF communication and navigation equipment by CNO msg 091737Z March 1982. H-3 communication equipment is inadequate for full range of utility missions because of lack of VHF band comm/NAV capabilities. Aircraft cannot communicate with U.S. or foreign Civil Air Traffic Control agencies or civil towers. During coordinated SAR efforts, H-3's cannot communicate with assisting military or civil ground units or with the U.S. Coast Guard. Two off-the-shelf kit installation packages have been identified to correct the above deficiencies. Aircraft assigned overseas direct support require AN/ARC-186 VHF radios and VIR-31H navigation receiver (kit A), CONUS SAR aircraft require installation Wulfsberg 7200 radio and AN/ARC-186 radio (kit B). A three year program will install kit A in 55 H-3's and kit B in 37 H-3's.

Development Status: AN/ARC-186 is in use with U.S. Air Force units, Wulfsberg 7200 is a commercial radio; approval for limited production (ALP) efforts for both are in process. VIR-31H already has approval for full production (AFP).

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,906	62	$2,551	28	$965			92	$5,422
O&MN Install.			(2)	$15	(45)	$738	(45)	$738		1,491
O&MN Training				$150						150
AN-6 Spares				$153		$28				181
GRAND TOTAL										$7,244

Installation Data: Installation will be accomplished at the depot during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: HH-3A Infrared Suppression (IRS) (OSTP 56-85)

Models of Aircraft Affected: HH-3A

Description/Justification:

Incorporation of an infrared suppression system will reduce the susceptability of the HH-3A Combat Search and Rescue helicopter to engagement by IR guided weapons in a hostile environment. This system will enhance the performance of installed infrared countermeasure equipment. Used in conjunction with an active jammer, it will provide protection from shoulder fired IR guided threats. The system is designed to mount aft of the existing tail pipe and is compatable with the existing engine and transmission access areas and bladefold.

Development Status: An investigation into IR suppression methods including design of a prototype is in process at NATC. The prototype will commence flight evaluations in April 1984. The HH-3A infrared suppression effort would expand upon the current NATC program.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,135	8	$910			9	$2,045
O&MN Install.			(1)	$15	(8)	$120		135
O&MN Training		50						50
APN-6 Spares		$46		$91				137
GRAND TOTAL								$2,367

Installation Data: Installation will be accomplished at the depot level by Standard Depot Level Maintenance (SDLM) and Field Mod Teams (FMT).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Night Vision Goggles (OSIP 57-85)

Models of Aircraft Affected: HH-3A

Description/Justification:

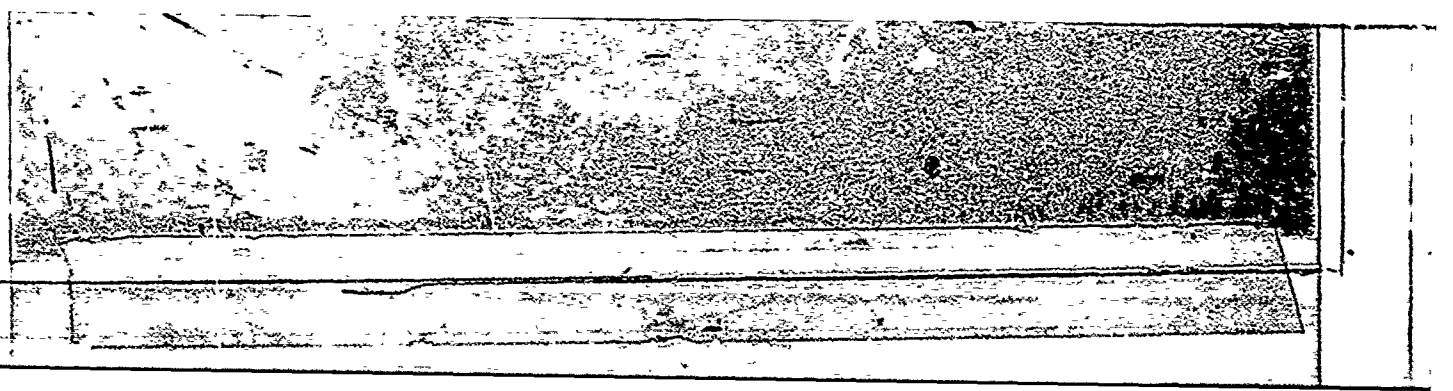
The present and projected threat requires low altitude helicopter operations which cannot now be conducted at night due to a lack of adequate night vision equipment. The third generation Aviation Night Vision Goggles, with appropriate cockpit lighting modifications for compatibility, will provide a limited capability for the flight crew to regain at night 25-75 percent of the day time visual capability.

Development Status: The Helicopter Night Vision System is being developed under RDT&E,N Program Element Number 64213N. The goggles have been developed by the U.S. Army and are referred to as Aviator's Night Vision Imaging Systems (ANVIS) or AVS-6. U.S. Navy approval for full production (AFP) is expected by April 1984. Army production was authorized in September 1982. A cockpit lighting modification for AVS-6 will be incorporated into the 9 HH-3A aircraft.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	9	$1,571			9	$1,571
O&MNR Install				$36		36
O&MN Training				$100		100
APN-6 Spares		$82				82
GRAND TOTAL						$1,789

Installation Data: Installation will be accomplished at the depot level by Standard Depot Level Maintenance (SDLM) and Field Mod Teams (FMT).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ASN-123 Tactical Navigation Set Modifications (OSIP 16-85)

Models of Aircraft Affected: SH-3H

Description/Justification:

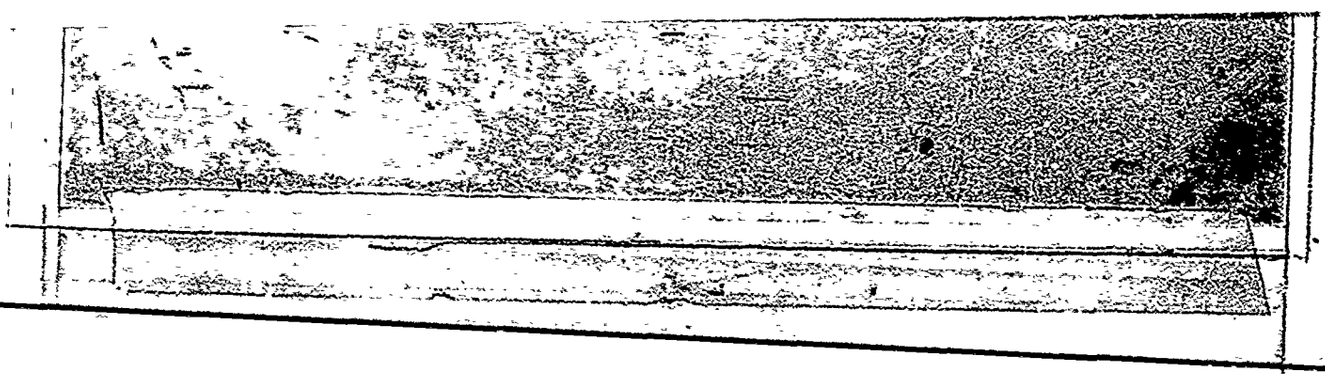
This modification increases tactical capabilities of the AN/ASN-123 TACNAV System through incorporation of hardware/software improvements. Present TACNAV System is unable to respond to current aircraft mission requirements due to exhaustion of available 32K computer memory. This modification will provide new memory core of 128K and increase computer processing rate.

Development Status: New memory core has completed formal qualification testing as part of the EA-6B Digitial Display Group Program. Approval for full production (AFP) is not required. This OSIP is a joint program between H-2 and H-3 aircraft. Funding assumes major portion of nonrecurring funded by H-2 new production.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	60	$6.772	54	$4,445			114	$11,217
O&MN Install.			(60)	$126	(54)	$113		239
O&MN Training		$100						100
APN-6 Spares		$1,336		$1,120				2,456
GRAND TOTAL								$14,012

Installation Data: Installation will be accomplished by the contractor.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: EW Suite for HH-3A Helicopters (OSIP 17-86)

Models of Aircraft Affected: HH-3A

Description/Justification:

Incorporation of an EW suite will reduce vulnerability and improve survivability for the HH-3A Combat Search and Rescue (CSAR) helicopter in a hostile environment. The EW equipment suite consists of the AN/APR-39A(V)1 Radar Warning Receiver, the AN/AAR() Missile Warning Receiver and the AN/ALE-39 Chaff Dispenser Set. At present, Navy HH-3A aircraft have no capability to detect IR missile attack or hostile radar illumination. Current defenses are selected deployment of flare decoys and evasive maneuvers, each dependent on visual sighting of the attack. The AN/APR-39A(V)1 is an improved, lightweight radar warning receiver which is capable of detecting and identifying adversary threat emitters employed for target acquisition and control guidance, and displaying direction of arrival information to aircrews. The AN/AAR() will passively detect approaching missiles by sensing ultraviolet radiation emanating from the rocket motor. The AN/ALE-39 dispensing system is an improved version of the current operational AN/ALE-29 installed in the HH-3A. Carrying expendable chaff, flare and/or jammer payloads, the AN/ALE-39 has both manual and programmed dispensing capabilities.

Development Status: The AN/APR-39(V)1 is a joint Army/Navy project with the Army as executive service. Navy TECHEVAL/OPEVAL will be complete in the third quarter FY 1984 followed by approval for full production (AFP) in the first quarter FY 1985. Two advanced development AN/AAR() systems were developed by the Army and jointly tested and evaluated by the Navy and Army. Service testing commenced in third quarter FY 1984 with approval for full production (AFP) expected third quarter FY 1985. The AN/ALE-39 was approved for service use in February 1976 and is in production.

OSIP 17-86

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,847	4	$725	4	$453			9	$3,025
O&MN Install.			(1)	$25	(4)	$100	(4)	$100		225
O&MN Training		$200		$200						400
APN-6 Spares		$18		$35		$37				90
GRAND TOTAL										$3,740

Installation Data: Installation will be accomplished at the depot level by Standard Depot Level Maintenance (SDLM) and Field Mod Teams (FMT).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: MK-46/Advance Light Weight Torpedo (ALWT) Presetter (OSIP 19-86)

Models of Aircraft Affected: SH-3H

Description/Justification:

This modification will replace the existing presetter. The new presetter will permit cockpit control of MK-46 and EX-50 (ALWT) launch parameters. This modification includes an armament system control unit (ASCU) which will provide BITE and logic for all stores and release equipment. The MK-8 MOD 6 bomb shackle presently used for suspension and release of torpedoes on the SH-3H will be retained.

Development Status: Prototype circuitry of SH-3H torpedo presetter was installed and successfully tested on an SH-2 aircraft at NATC to provide MK-46 MOD 5 compatibility. Initial software/hardware design concepts have been formulated for ALWT compatibility at NAC Indianapolis. Approval for full production (AFP) is anticipated for completion in September 1985.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	59	$4,834	60	$4,249					119	$ 9,083
O&MN Install.			(30)	$231	(60)	$462	(29)	$223		916
O&MN Training		$100		$250						350
APN-6 Spares		$867		$1,023						1,890
GRAND TOTAL										$12,239

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) by Standard Depot Level Maintenance (SDLM) and Field Mod Teams (FMT).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Infrared Detecting System (IRDS) (OSIP 57-72)

Models of Aircraft Affected: P-3A/B/C

Description/Justification:

IRDS is an electro-optical surveillance system capable of recognizing and identifying surface targets including submarine periscopes and snorkels under nighttime conditions. The system consists of a night imaging sensor and associated electronics and display. A video recorder will be used in conjunction with the system. It will be capable of inflight recording and provide video film for postflight analysis. The IRDS installation displaces the KA-74 camera system. Therefore an optical window is being provided for the flight station escape hatch for use with a hand held camera. An auxiliary display is provided for the TACCO station in P-3C aircraft.

Development Status:

1. Interim IRDS - 11 Hughes GFE Systems for 66 Pod mounted P-3A/B/C aircraft, 4 Texas Instrument (TI) GFE Systems for 16 pod mounted P-3B aircraft. Production Hughes systems commenced delivery in December 1972. Flight test completed March 1973 with Hughes system. TI system commenced delivery in September 1975; flight test completed November 1975. Aircraft have been deployed with AN/AAR-37 and AN/AAR-40 systems.

2. Production AN/AAS-36 IRDS - 253 GFE systems planned for 282 nose mounted P-3A/B/C aircraft (144 P-3C, 138 P-3A/B). Production AN/AAS-36 IRDS commenced delivery in October 1978. Approval for service use (ASU) was received August 1979.

OSIP 57-72

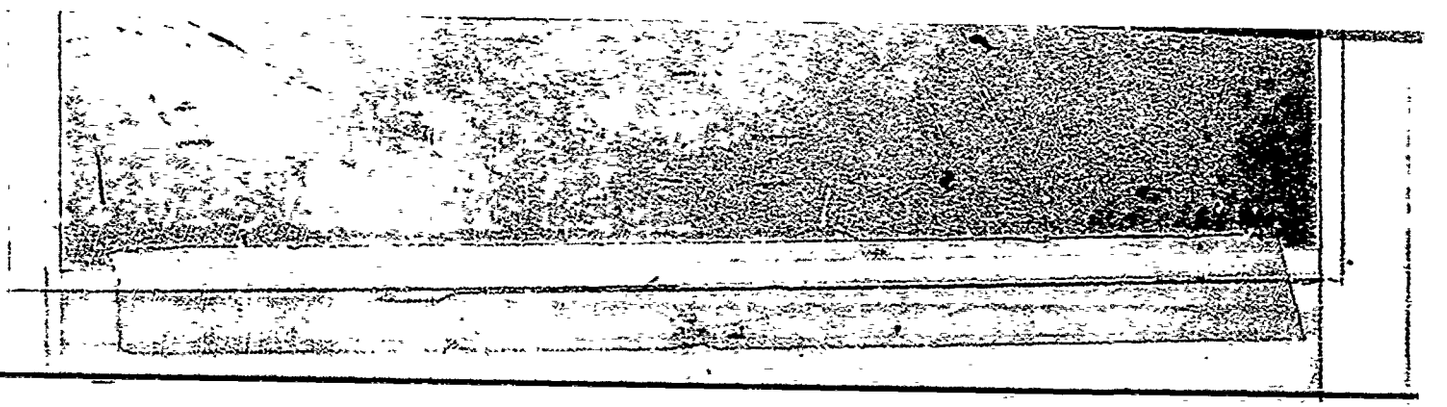
Project Financial Plan:

	FY 1972		FY 1973		FY 1974		FY 1975		FY 1976		FY 1TQ	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	15	$5,945			51	$4,498	16	$727				$1,305
APN-5 Install.												
Total APN-5		$5,945				$4,498		$727				$1,305
O&MN Install.			(11)	$66	(9)	$66	(34)	$265	(24)	$237	(4)	$51

	FY 1977		FY 1978		FY 1979		FY 1980		FY 1981		FY 1982	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	12*	$1,722	55**	$13,247**	50	$14,685	70	$24,838	49	$17,702	24***	$3,772***
APN-5 Install.	(12)	293	(42)	896	(36)	702						
Total APN-5		$2,015		$14,143		$15,387		$24,838		$17,702		$3,772
O&MN Install.					(1)	$30			(51)	$3,636	(57)	$4,629
APN-6 Spares				$323		$192				$423		

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	18	$16,172	4	$8,319		$9,660		$8,702		$9,420		$16,550
APN-5 Install.												
Total APN-5		$16,172		$8,319		$9,660		$8,702		$9,420		$16,550
O&MN Install.	(27)	$1,511	(19)	$1,157	(18)	$1,279	(19)	$1,213				
APN-6 Spares		$9				-0-						

*Includes one P-3C prototype with AAS-36.
**Includes one P-3B prototype with AAS-36.
***Includes one P-3A prototype with AAS-36.

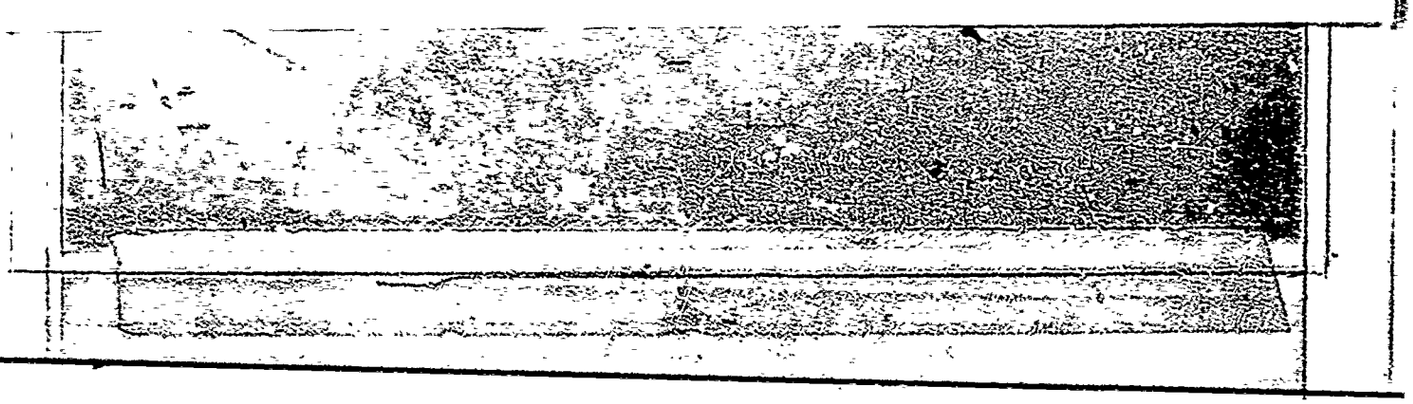


OSIP 57-72

Project Financial Plan (Cont'd):

	FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.		$10,968		$11,652	364	$179,884
APN-5 Install.						1,891
Total APN-5		$10,968		$11,652		$181,775
O&MN Install.						14,140
APN-6 Spares						947
GRAND TOTAL						$196,862

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) and Contractor field teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/AQA-7 Improvements (OSIP 84-79)

Models of Aircraft Affected: P-3B/C

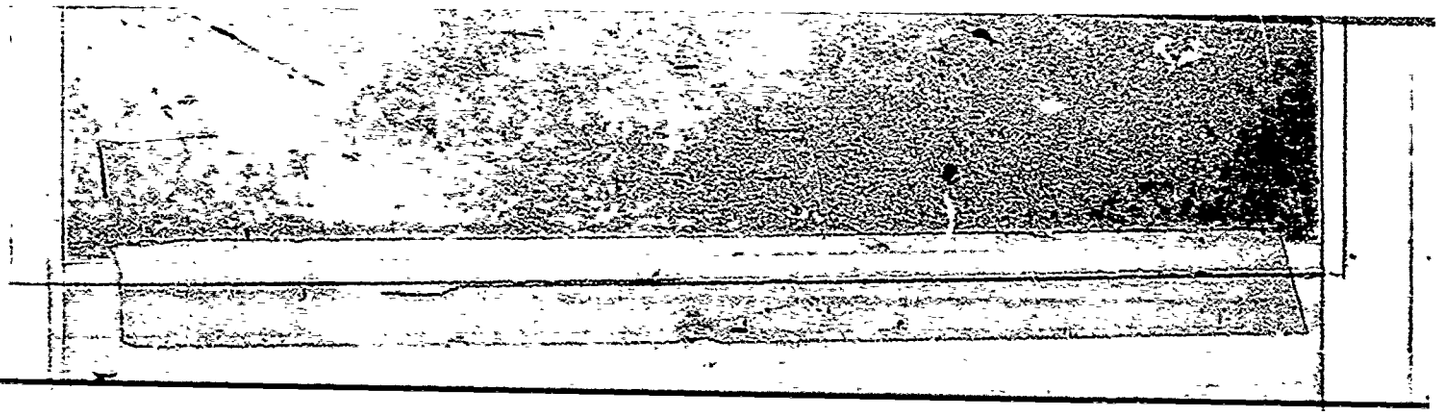
Description/Justification:

This program will update the AQA-7 Acoustic Processing System by incorporating a Triple Vernier, DICASS and upgraded bearing computer. It has been demonstrated that a frequency Vernier greatly increases an acoustic sensor operator's recognition and classification capabilities. The DICASS capability provides long range, single sonobuoy targeting information which is essential for the fast moving submarine threat. This modification includes an update to the AQA-7 control panel and bearing computer for improved man/machine interface. An additional improvement provides a broadband processing capability compatible with existing sensors which will employ both cross correlating of two sonobuoy signals and auto-correlation of single sonobuoy signals. The Triple Vernier portion of this program is applicable to 167 P-3C (115 P-3C NUDS and 52 P-3C UD-I/II). The Triple Vernier Interactive Control Panel (ICP) and bearing computer is applicable to 223 P-3 aircraft (115 P-3 NUDS, 30 P-3C UD-I and 78 P-3C UD-II). The DICASS modification is applicable to 252 P-3 aircraft (115 P-3C NUDS, 85 P-3C UD-I/II, and 52 P-3B MOD). The broadband modification will affect 225 P-3 aircraft (115 P-3C NUDS, 30 P-3C UD-I, 80 P-3C UD-II).

Development Status: The Triple Vernier, DICASS, improved control panel and improved bearing computer represent corrections to deficiencies of functions already incorporated in the AQA-7 and do not require approval for service use (ASU). The AQA-7 received ASU in March 1977.

Project Financial Plan:

	FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (3V/DICASS)	89/76	$12,377	78/123	$17,432		$15,815		$4,411		$23,681		$26,649
O&MN Install.						$1,738		$11,177		$9,114		$7,898
APN-6 Spares		$900		$3,845		$2,635				$1,735		$4,860

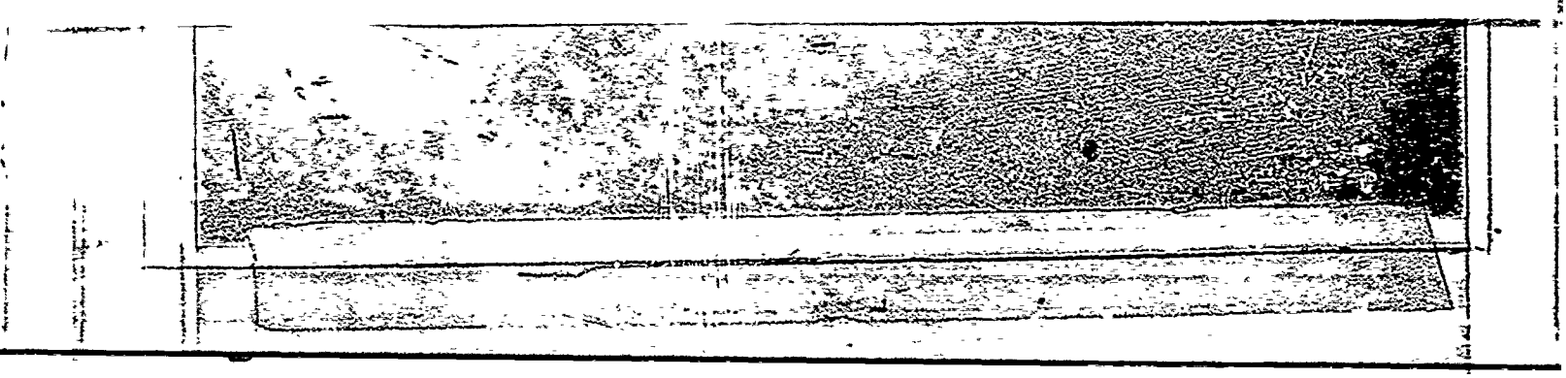


OSIP 84-79

Project Financial Plan (Cont'd):

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$23,587		$12,912		$13,181					167/199	$150,045
O&MN Install.		$5,227		$388		$3,162		$4,646		$1,021		44,371
APN-6 Spares		$3,486		$2,309		$1,965						21,735
GRAND TOTAL												$216,151

Installation Data: Installation of AFC kits will be accomplished by contractor field teams and organizational level. Component modification will be accomplished by factory turn-around program.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: HARPOON (OSIP 104-79)

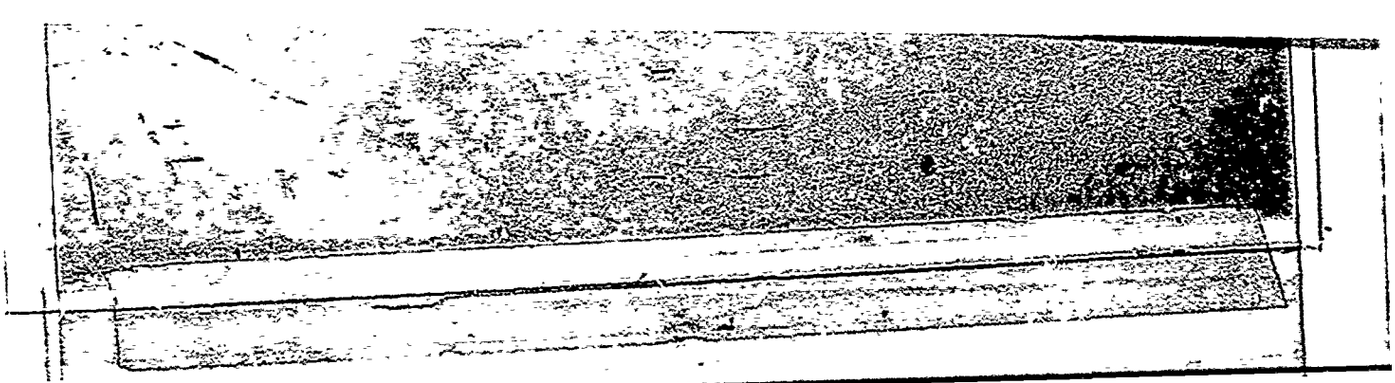
Models of Aircraft Affected: P-3/B/C

Description/Justification:

The U. S. Navy has an urgent requirement for an offensive/defensive all-weather, medium range, air-to-surface missile capability. The HARPOON missile, in conjunction with the P-3 weapon system, will provide an effective worldwide sea control vehicle that can destroy a surfaced submarine, a high-speed surface missile launcher, or any ocean-going military target with minimum risk to U. S. Navy forces. The P-3 force with the addition of HARPOON missiles provides the only worldwide ocean presence that can respond to interdictive roles such as the PUEBLO or MAYAGUEZ incidents, as well as provide protection for sea lines of communication and trade route coverage to ensure the critical flow of raw materials and oil supplies necessary for maintenance of our nation's industrial requirements. The need for this long-range protective vehicle is particularly critical in remote areas like the Indian Ocean where tactical aircraft are not normally available. The P-3 aircraft, when HARPOON equipped, will make a major contribution to the Navy's anti-surface ship warfare and surveillance capability at a relatively small cost.

This installation will give the P-3 aircraft a capability to carry and launch four HARPOON missiles. Provisions for the HARPOON Airborne Command and Launch System (HACLS) (AWG-19) include standard wing pylons, wing wiring, interconnecting cables within the fuselage and the following equipment: data processor, logic unit, control panel, auxiliary armament interconnect unit, power distribution box, junction box and missile simulator. In addition this modification provides for the continuous automatic updating (on-line) of aircraft and target parameters to reduce operator workload and improve weapon accuracy. This modification will also provide an update to the P-3 Armament Control System to permit the full utilization of the Block 1-C HARPOON missile. This modification addresses 199 P-3 aircraft (144 P-3C and 55 P-3B) for HACLS and 245 P-3 aircraft for on-line/BLK-1C.

Development Status: Approval for full production (AFP) of the HARPOON weapon system was obtained in February 1981.



OSIP 104-79

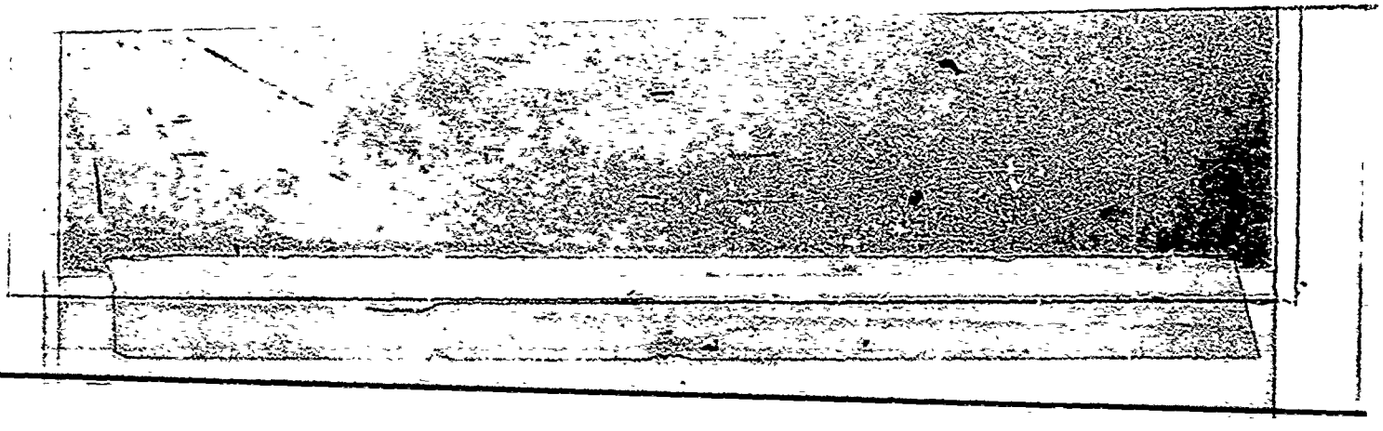
Project Financial Plan:

	FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.	20	$6,791	28	$9,576	21	$8,116	40	$13,708	48	$19,055	42	$9,137
APN-5 Install.	(20)	1,493										
Total APN-5		$8,284		$9,576		$8,116		$13,708		$19.055		$9,137
O&MN Install.					(16)	$1,760	(16)	$2,131	(27)	$3,785	(42)	$5,892
APN-6 Spares		$456		$59								

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 Proc.		$3,540		$4,211		$4,243		$4,812		$5,365
O&MN Install.		-0-								
Total APN-5		$3,540		$4,211		$4,243		$4,812		$5,365
O&MN Install.	(48)	$7,117	(30)	$4,929		$1,296		$2,496		$2,608
APN-6 Spares		-0-		$94		$815		$933		$1,030

	FY 1990		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			199	$ 88,554
APN-5 Install.				1,493
Total APN-5				$ 90,047
O&MN Install.		$2,757		34,771
APN-6 Spares				3,387
				$128,205

Installation Data: Installation will be accomplished by contractor field team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: P-3B Special Project Aircraft (OSIP 29-82)

Models of Aircraft Affected: P-3B

Description/Justification:

This modification replaces obsolescent equipment in four P-3B Special Project Aircraft by means of:

a. Procurement of common Navy systems for increased capability, reduced operator workload and common logistics.
b. Installation and support of special mission equipment provided by Intelligence Agencies.
c. Update of RF distribution hardware for selected intelligence gathering subsystems.
d. Procurement of special mission equipment as directed by the Chief of Naval Operations.
e. Conversion of interior and exterior of aircraft for operations in the 1990's.

Development Status: Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$3,400		$8,314	1	$7,885	1	$5,121	1	$5,546	1	$5,870
O&MN Install.				$1,562		$1,724	(1)	$6,877	(1)	$6,288	(1)	$6,288
APN-6 Spares				$214		$392		$314				

OSIP 29-82

Project Financial Plan (Cont'd):

	FY 1988		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			4	$36,136
O&MN Install.	(1)	$6,288		29,027
APN-6 Spares				920
GRAND TOTAL				$66,083

Installation Data: Installations will be accomplished by drive-in Mod at the Naval Air Rework Facility (NARF), the Naval Air Development Center (NADC), or contractor facilities.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: P-3C MAD System Integration (OSIP 31-82)

Models of Aircraft Affected: P-3C

Description/Justification:

This modification enhances the ASQ-81 magnetic anomaly detection (MAD) system on 201 P-3C aircraft by providing a compensation group adapter (CGA) for aircraft magnetic compensation. This modification also installs ASQ-81 MAD systems on 47 P-3C aircraft that are currently equipped with obsolescent ASQ-10 systems.

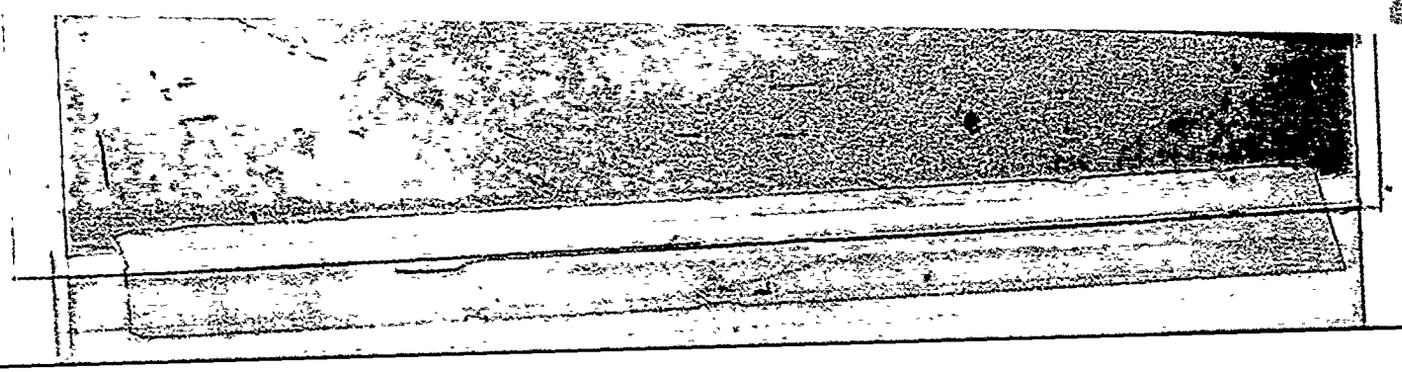
Development Status: Both the MAD CGA and the AN/ASQ-81 obtained approval for service use (ASU) in July 1979.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (CGA&IMP/ASQ-81)	45/0	$2,736	73/0	$3,453	51/15	$8,298	22/22	$8,102	10/10	$4,077
O&MN Install.			(17/0)	$1,471	(60/0)	$4,260	(53/3)	$4,581	(44/17)	$6,463
APN-6 Spares		$349		$1,076						

	FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (CGA&IMP/ASQ-81)					201/47	$26,666
O&MN Install.	(22/22)	$5,764	(5/5)	$1,310		23,849
APN-6 Spares						1,425
GRAND TOTAL						$51,940

Installation Data: The contractor will build and install CGA and MAD improvement kits via field team. ASQ-81 kits will be installed via drive-in modification at the contractor's facility.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: P-3A/B/C PARKHILL (KY-75) (OSIP 71-82)

Models of Aircraft Affected: P-3A/B/C

Description/Justification:

The KY-75 PARKHILL provides HF secure voice capability to satisfy DOD policy with respect to tactical voice communications. This modification addresses 133 P-3A/B TACNAV MOD and 225 P-3C (115 NUD, 30 UD-I, 80-UD-II) aircraft.

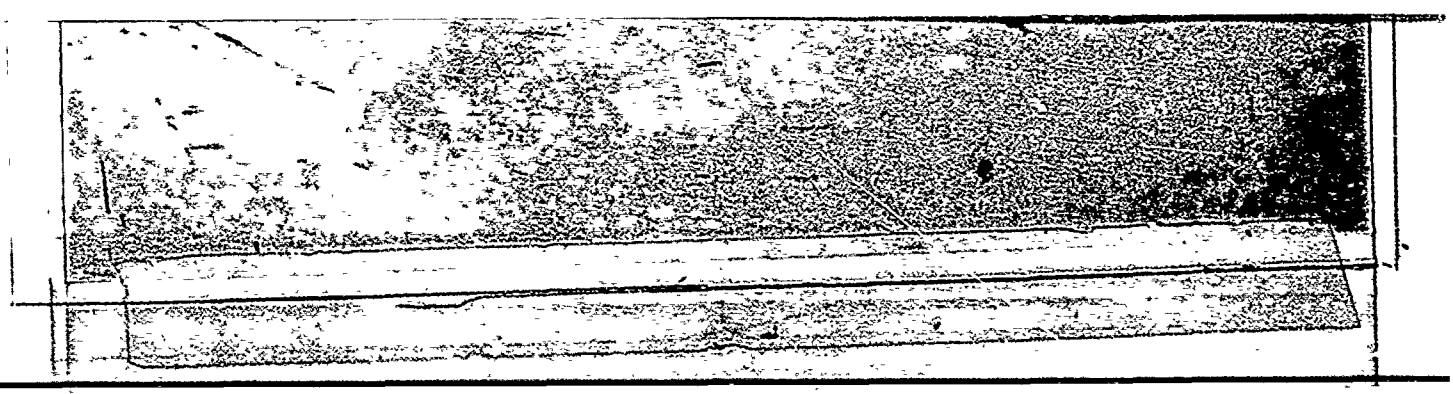
Development Status: The PARKHILL system has been developed for joint service use and has received approval for full production (AFP). P-3C aircraft installation will be verified by FOT&E. KY-75 is being procured by the National Security Agency.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	83	$2,221	72	$855	71	$2,234	70	$3,027	62	$1,844
O&MN Install.			(17)	$995	(72)	$4,032	(73)	$4,285	(70)	$4,108
APN-6 Spares		$58		$97						

	FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					358	$10,181
O&MN Install.	(80)	$4,801	(46)	$2,700		20,921
APN-6 Spares						155
GRAND TOTAL						$31,257

Installation Data: Installation will be accomplished by contractor field mod team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 198_

Appropriation: APN - Activity 5

Modification Title and No.: ALR-66 ESM System (OSIP 48-83)

Models of Aircraft Affected: P-3B/C

Description/Justification:

The present P-3 electronic sensor monitoring (ESM) system is obsolete and lacks the required sensitivity, frequency coverage and bearing accuracy for threat warning. The ALR-66 is a current technology ESM system which will provide automatic indication of the bearing, range and classification of each threat radar transmission. The ALR-66 is designed so that its threat library can be updated at the organizational level without hardware modification. While 182 P-3C aircraft will have wiring provisions for this system, only 100 systems will be procured to support deployed HARPOON equipped aircraft.

Development Status: P-3B ALR-66(V)2 received approval for full production (AFP) in October 1983. P-3C ALR-66(V)3 OPEVAL completes in May 1984 and AFP is anticipated in August 1984.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$13,856	37	$11,398	72	$29,221	72	$26,146		$6,216
O&MN Install.		$995	(1)	$60	(27)	$1,593	(64)	$3,751	(72)	$4,150
APN-6 Spares		$1,853		$2,276		$5,256		$4,636		

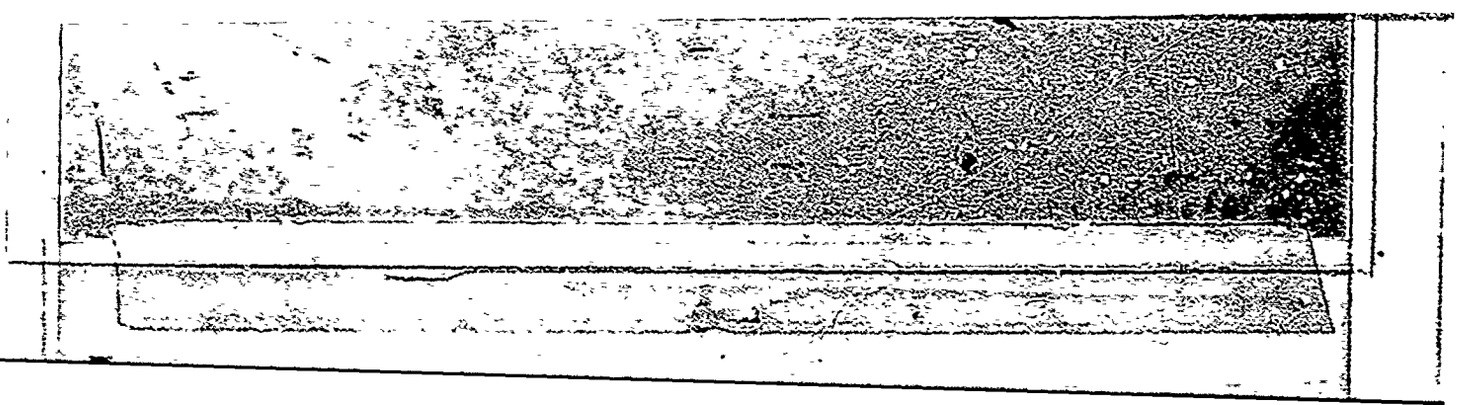
OSIP 48-83

Project Financial Plan (Cont'd):

	FY 1988 Qty	FY 1988 Cost	TOTAL Qty	TOTAL Cost
APN-5			182*	$ 86,837
O&MN Install.	(18)	$1,048		11,577
APN-6 Spares				14,021
GRAND TOTAL				$112,435

* Prior to FY 1983 CNO directed the procurement of 53 P-3B kits and 33 ALR-66 systems to support deployed forces.

Installation Data: Installation will be accomplished on-site by Naval Air Rework Facility (NARF) field teams for P-3B aircraft. Installation of P-3C kits will be accomplished by the contractor.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Advanced Signal Processor Modernization (OSIP 80-84)

Models of Aircraft Affected: P-3C

Description/Justification:

The Advanced Signal Processor (ASP) provides the Fleet with significantly improved ASW acoustic detection and classification capabilities which are essential for target prosecution in average and poor water conditions. This modification is especially critical in view of the minimum quantity of new Update III aircraft entering the P-3 Fleet. This program installs the ASP with associated receivers, displays and recorders into P-3C Update I (30 aircraft) P-3C Update II (80 aircraft) and P-3C nonupdated (115 aircraft). This acoustic update will provide a common configuration with Update III and is in compliance with NDCP #WO484-AS dated 23 June 1981.

Development Status: ASP received approval for limited production (ALP) in December 1983 and will receive approval for full production (AFP) by November 1984.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$22,976	9	$63,147	23	$168,588	31	$234,551	35	$283,198	36	$307,490
O&MN Install.					(2)	$1,415	(9)	$6,367	(23)	$16,270	(31)	$21,929
APN-6 Spares		$987		$5,867		$8,782		$890		$1,190		

OSIP 80-84

Project Financial Plan (Cont'd):

	FY 1990		FY 1991		FY 1992		FY 1993		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	45	$399,974	44	$394,362					225	$1,874,286
O&MN Install.	(35)	$24,759	(36)	$25,466	(45)	$31,833	(44)	$31,256		159,295
APN-6 Spares										17,716
GRAND TOTAL										$2,051,297

Installation Data: Installation will be accomplished on-site by contractor field teams.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

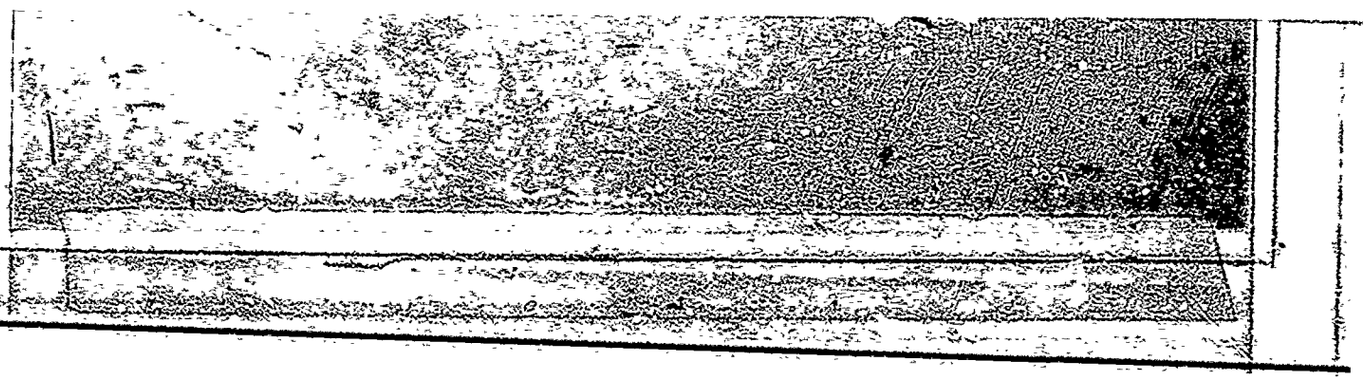
Modification Title and No.: HF Simultaneous Operations (SIMOPS) (CSIP 82-84)

Models of Aircraft Affected: P-3C

Description/Justification:

The P-3C aircraft has two High Frequency (HF) radios installed. However, it is not possible to independently operate both radios in the transmit and receiver modes simultaneously due to the presence of radio frequency interferences. Each radio has the following communications modes: (1) voice, (2) teletype; and (3) data link. As presently configured, the aircraft can neither transmit simultaneously on both radios nor can it simultaneously receive voice or teletype while receiving data link communications. The lack of this capability severely restricts communications and limits the total integration of the P-3C in the Fleet Command, Control and Communications structure. The Fleet need for this capability has been documented by operational requirements from CINCLANT and CINCPAC. In addition, AN/ARC-161 reliability improvements are required to ensure adequate performance of the equipment with increased utilization. For the period ending July 1983, the AN/ARC-161 HF radio was number one on the P-3 Equipment Readiness Degradation Ranking (RISE). The receiver/transmitter unit, RT1100, has held the number one position for cannibalization removals since February 1983, and the RF amplifier, AM 6561 has recently risen to the number four position for cannibalization removals. The HF communication subsystem improvement will consist of: (1) modification of the currently installed AN/ARC-161 radio sets (2 per aircraft) to add radio frequency filtering to allow for simultaneous transmit and receive operation , (2) modification of the aircraft communications switching matrix, A-368, to allow utilization of both HF radio sets simultaneously and (3) modification of AM-6561/ARC-161 to improve CU-2070/ARC-161 functional interface and improve radio reliability. This modification affects 235 P-3C aircraft (115 NUDS, 30 Update I, 80 Update II, and 10 Update III).

Development Status: The AN/ARC-161 HF radio set is currently in production and is approved for full production on the P-3C aircraft. This modification to enable two radio sets to operate simultaneously is minor and approval for full production (AF2) is not required.



OSIP 82-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$5,000	48	$4,925	48	$5,178	48	$5,363	48	$5,677	42	$5,258
O&MN Install.			(1)	$26	(48)	$503	(48)	$503	(48)	$503	(48)	$503
O&MN Training		$275										
APN-6 Spares				$70		$74						

	FY 1990		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			235	$31,401
O&MN Install.	(42)	$440		2,478
O&MN Training				275
APN-6 Spares				144
GRAND TOTAL				$34,298

Installation Data: Installation will be accomplished by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: CP-3A (OSIP 84-84)

Models of Aircraft Affected: P-3A

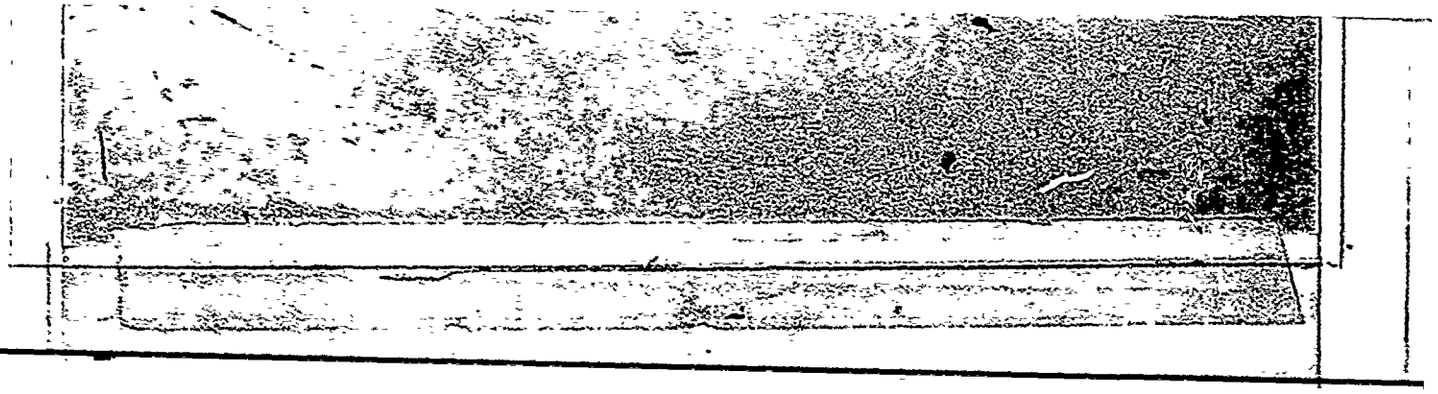
De cription/Justification:

With the retirement of C-118 and C-131 aircraft from Navy inventory, there is a need to replace this quick reaction medium lift logistic support capability. The cargo/passenger conversion of P-3A aircraft is considered a cost effective supportable way to satisfy this requirement. This conversion will include:

a. A 100-inch wide by 80-inch high cargo door.
b. A cargo floor capable of supporting 300 pounds per square foot and accepting standard military pallets.
c. A maximum seating capacity for 64 passengers.
d. An upgraded navigation communication system including an LTN-211 OMEGA, dual LTN-72 inertials, dual VIR-31A VHF Comm ranging, dual ARC-161 HF Transceivers, a 618MA-3A VHF Comm Set and a Primus 400 weather radar.

The above configuration will provide a maximum cargo load of 10,000 pounds with a range of approximately 3,800 nautical miles.

Development Status: P-3A has approval for full production (AFP). The CP-3A conversion adds systems which are already operational in the P-3 Fleet. Testing will be limited to Naval Air Test Center (NATC), Patuxent River confirmation of suitable installation.



OSIP 84-84

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$6,332	9	$13,275			10	$19,607
O&MN Install.			(1)	$2,758	(9)	$24,822		27,580
APN-6 Spares		$323		$1,650				1,973
GRAND TOTAL								$49,160

Installation Data: Installation and Standard Depot Level Maintenance (SDLM) will be by contractor drive-in modification.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Omnibus R&M Improvements (OSIP 53-85)

Models of Aircraft Affected: P-3A/B, P-3C

Description/Justification:

As the P-3 enters its 20th year of Fleet service, supportability and maintainability of many of the original equipments, especially avionics, are becoming increasingly more difficult and costly because of component obsolescence and fatigue. Most of the avionics systems were designed using discrete transmitter logic (DTL) devices which were state-of-the-art at the time. But today, DTL devices are either out of production or are extremely expensive and difficult to obtain because of limited production. Other components are experiencing the same situation. When a component is no longer available, it is necessary to either redesign the circuit using more readily available components or to replace the whole system. Fatigue and age are also factors. As components and materials age they are more susceptible to environmental conditions. Heat induced failures and corrosion problems accelerate with age.

NAVAIR recognizes the potential seriousness of the problem and have chartered various programs (i.e., Readiness Improvement Status Evaluation (RISE), Fleet Improvement Action Team (FIAT)) to counteract the severity of the problem by identifying it early enough to offer effective work around solutions. What is lacking is a means to fund on a continuing basis the various cost effective recommendations that come from these programs.

The purpose of this program is to provide the requisite funding to implement various minor cost effective R&M changes to the P-3 weapon system. The changes can be either airframe, avionic, accessory or procedures. Once implemented, the R&M changes should result in a cost reduction for the P-3 while improving its availability. For example, the poor reliability of the APS-80 cooling fans has been identified by the P-3 FIAT as a major cause of radar magnetron and power supply failure. Procurement and installation of significantly more reliable fans will save the Navy maintenance costs and improve readiness.

Development Status: The changes when identified will be minor and will not require approval for full production (AFP).

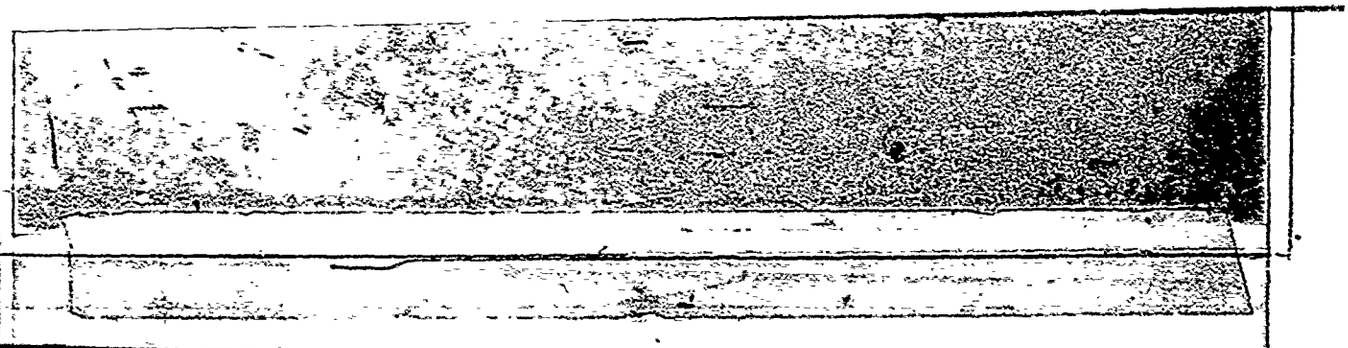
OSIP 53-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$1,060		$1,123		$1,189		$1,258		$1,332
O&MN Install.				$210		$210		$210		$210
APN-6 Spares		$206		$218		$228		$244		$255

	FY 1990		TOTAL	
	Qty	Cost	Qty	Cost
APN-5				$5,962
O&MN Install.		$210		1,050
APN-6 Spares				1,151
GRAND TOTAL				$8,163

Installation Data: Installation will be identified as specific changes are implemented.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: FLIR Reliability Improvement (OSIP 102-79)

Models of Aircraft Affected: S-3A

Description/Justification:

The forward looking infrared (FLIR) system currently installed in the S-3A has consistently exhibited low reliability. This improvement will result in a FLIR installation which incorporates the major components currently installed in the P-3C and A-7 aircraft FLIR systems. These systems are currently exhibiting a reliability more than eight times higher than the present S-3A system mean time between failure (MTBF) of 320 hours versus 36 hours.

Development Status: Production engineering has started to repackage the existing P-3C/A-7 FLIR components into the S-3A FLIR weapons replaceable assemblies (WRA's).

Project Financial Plan:

	FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$823	5	$6,859	12	$5,084	10	$5,584	10	$2,647	50	$12,426
O&MN Install.					(5)*	$100	(12)	$232	(10)	$194	(10)	$203
O&MN Training								$100				
APN-6 Spares				$252		$1,992		$604		$588		$2,652

OSIP 102-79

Project Financial Plan (Cont'd):

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	40	$10,526	36	$10,026			163	$53,975
O&MN Install.	(50)	$1,015	(40)	$812	(36)	$731		3,287
O&MN Training								100
APN-6 Spares		$2,808		$2,674				11,570
GRAND TOTAL								$68,932

* Includes one prototype.

Installation Data: Installation will be accomplished by a contractor component update program.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Auxiliary Power Unit Increased Power (OSIP 106-82)

Models of Aircraft Affected: S-3A

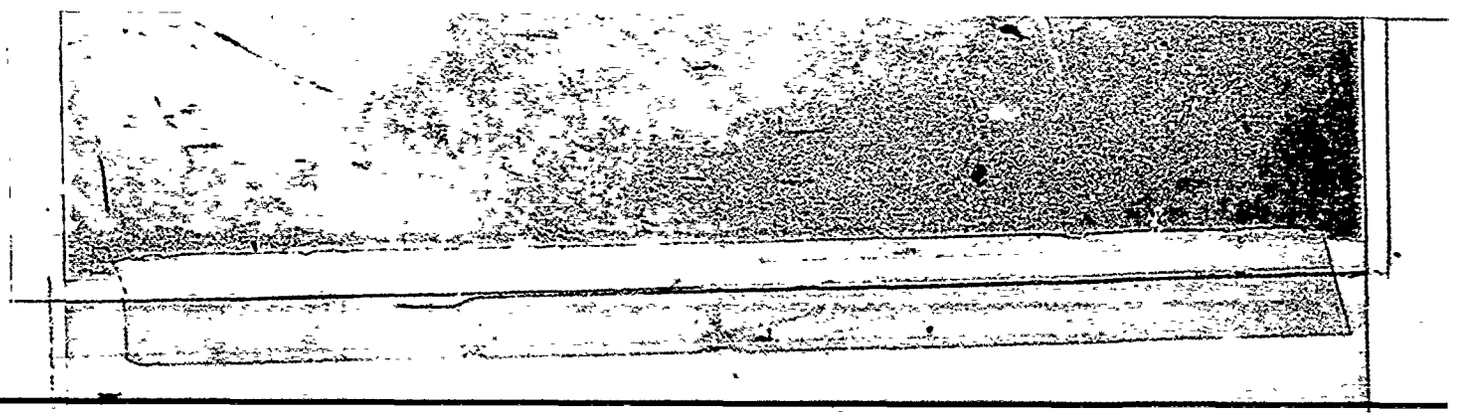
Description/Justification:

This change consists of providing an auxiliary power unit (APU) that will be capable of producing increased compressed air (80 ppm vice 48 ppm and 46 psia vice 32 psia at 130° ambient temperature) while simultaneously providing 45 KVA vice 2 KVA electrical power.

The increased air power input will allow the S-3A avionics systems to be operated on the ground without dependence upon ground air conditioning or electric power for avionics maintenance and checkout. The present APU does not provide adequate cooling air to prevent avionics equipment damage from overheating during prolonged ground operation.

The increased electrical power will allow all aircraft electrical systems to be operated in flight after loss of an engine-driven generator, thus providing an additional operational and safety factor. This change would result in a proposed increase of the Mean Time Between Failure (MTBF) to 850 hrs versus the present 80 Hrs.

Development Status: This unit will be a derivative of the APU developed for the F-18 aircraft. Qualification tests for the F-18 APU have been completed. RDT&E,N Program Element Number 63210N and project number W1631 - AS apply. Contractor tests and a Navy Technical evaluation will be conducted. Approval for full production (AFP) is anticipated in May 1984.



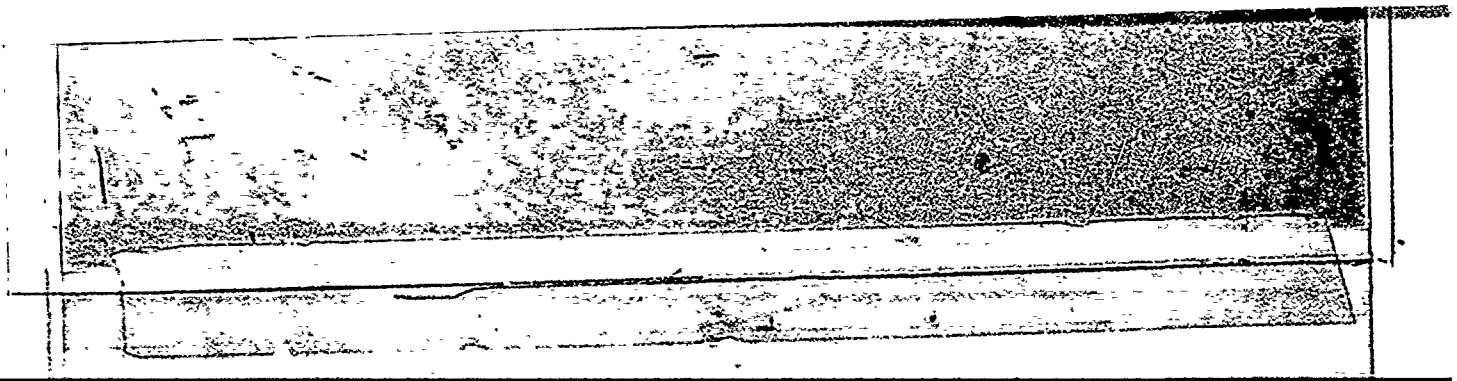
OSIP 106-82

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$3,500		$4,047	20	$16,243	47	$27,477	43	$24,090	34	$19,650
O&MN Install.							(20)	$3,564	(47)	$7,585	(43)	$6,940
O&MN Install. Trainer						$101		$353				
O&MN Factory Training								$500				
O&MN Interim Support										$643		
APN-6 Spares						$3,338		$2,639		$283		

	FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$7,075			156	$102,092
O&MN Install.	(34)	$5,487	(12)	$1,931		25,507
O&MN Install. Trainer						454
O&MN Factory Training						500
O&MN Interim Support						643
APN-6 Spares						6,260
GRAND TOTAL						$135,446

Installation Data: Installation will be accomplished by contractor field mod teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Display Generator Unit (DGU) Mod (OSIP 54-83)

Models of Aircraft Affected: S-3A

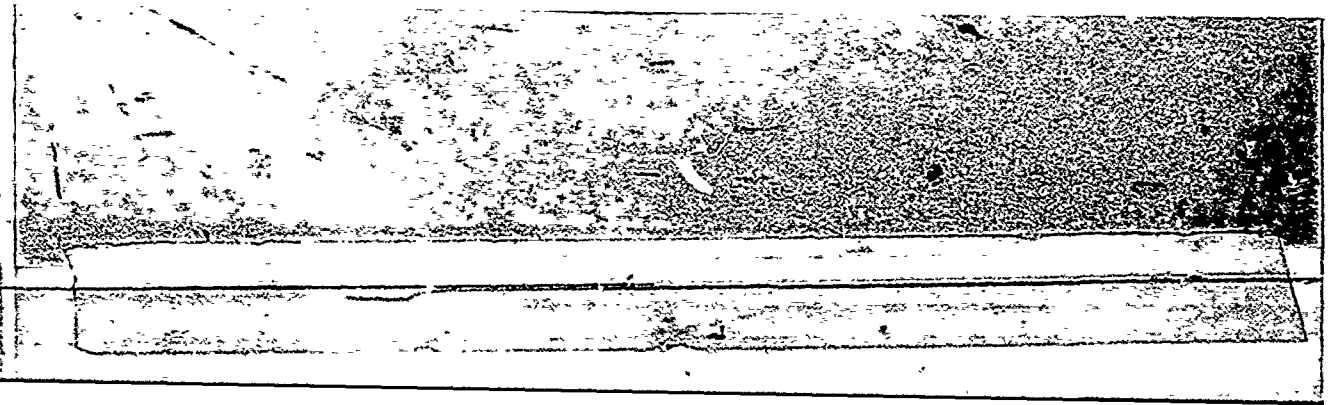
Description/Justification:

The display generator unit (DGU) has consistently been a top 10 Readiness Improvement Summary Evaluation (RISE) item. Additionally, 1200 separate parts comprised of 27 individual parts are the subject of a 5-year protect buy because of parts obsolescence in each DGU so that a redesign is absolutely essential for supportability. This redesign effort, in addition replacing the obsolescent parts, will provide a 300 percent improvement in reliability and correct existing maintainability problems. This would result in a proposed increase of the Mean Flight Hours Between Failure (MFHBF) from 100 hours to 500 hours.

Development Status: LORAL, the current supplier of the DGU, has under development for NAVAIR, an updated version of the DG which has been designated a universal display generator (UDG). The UDG is undergoing qualification testing with production planned in FY 1984. This UDG will be modified for S-3A application. Approval for full production (AFP) for an S-3A application is not required. An Airframe Change is required to install the modified unit.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$6,964	1	$8,264	44	$21,217	43	$18,833	26	$11,225
O&MN Install.							(45)	$2,924	(43)	$2,794
O&MN Trainer Install.								$30		
O&MN Training								$50		
APN-6 Spares						$2,750		$5,755		



OSIP 54-83

Project Financial Plan (Cont'd):

	FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	30	$13,709	15	$7,256			159	$ 87,868
O&MN Install.	(26)	$1,689	(30)	$1,949	(15)	$975		10,331
O&MN Trainer Install.								30
O&MN Training								50
APN-6 Spares								8,505
GRAND TOTAL								$105,384

Installation Data: Installation will be accomplished by contractor field mod teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ASA-82 Tactical Display System (OSIP 125-83)

Models of Aircraft Affected: S-3A

Description/Justification:

The multi-purpose displays (MPD's) serve to display all tactical information to the flight crew members. Four common System Replaceable Assemblies (SRAs) in the four MPD's account for 40 percent of the MPD failures. Additionally, the MPD's utilize hybrid circuit technology; and nine of the nineteen hybrids used in the MPD are currently obsolete with the remaining ten projected to be obsolete within 5 years. The Aviation Supply Office purchased a 5-year protect buy of the nine obsolete components in FY 1980. An additional benefit will be an increase in Mean Time Between Failure (MTBF) from 27 hours to 200 hours.

Development Status: The hybrid replacement candidates have all been identified with the program accelerated to FY 1983. Approval for full production (AFP) is not required. An ECP has been requested from Loral with assistance from NARF Alameda.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$250		$3,201	17	$5,040	50	$8,881	58	$10,501	35	$6,707
O&MN Install.							(17)	$401	(50)	$1,179	(58)	$1,368
O&MN Software						$100						
APN-6 Spares						$2,675		$2,832		$2,938		$1,562

OSIP 126-83

Project Financial Plan (Cont'd):

	FY 1989		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			160	$34,580
O&MN Install.	(35)	$826		3,774
O&MN Software				100
APN-6 Spares				10,007
GRAND TOTAL				$48,461

Installation Data: Installation will be by the vendor by a forced turn-around program at the vendor's facility. Installation will consist of modification to four Weapon Replaceable Assemblies (WRAs).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Non-Ice/Low Limit Control Valve (OSIP 89-84)

Models of Aircraft Affected: S-3A

Description/Justification:

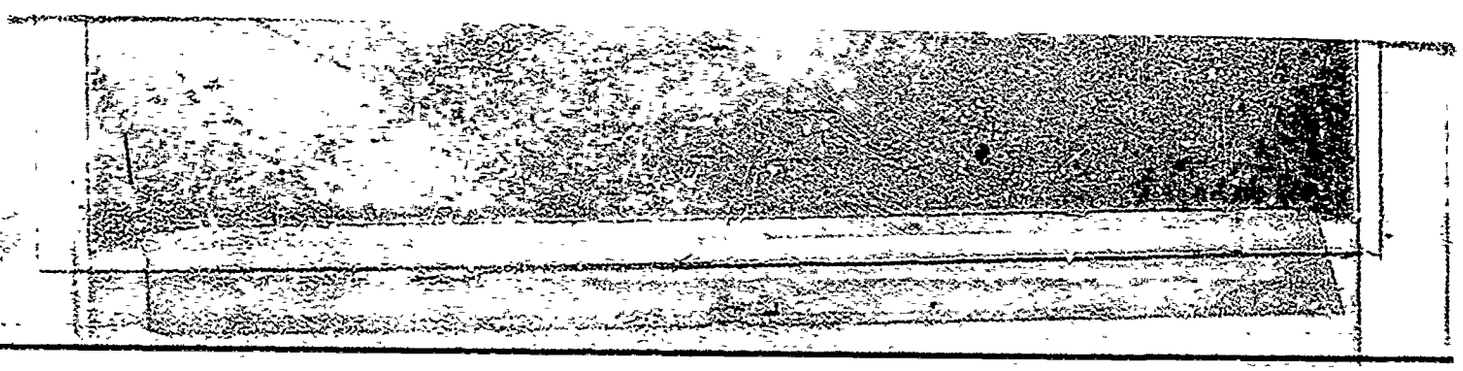
The non-ice/low limit control valve is an integral part of the environmental control system responsible for damping surges in the system caused by power fluctuations. This damping is accomplished through a feedback mechanism, and excessive damping rate and/or failures of the valve have resulted in pressure buildup in the duct causing duct separation. This phenomenon occurs primarily on full power application such as on takeoff power application and has resulted in numerous aborted takeoffs/sortie losses. The valve is currently high non-mission capable supply in the Fleet, and the addition of a position feedback circuit to the sensor will reduce the damping, thus reducing the failure and abort rates.

Development Status: This proposed change is in the process of being prototyped to be evaluated in an S-3A. Laboratory validation change has been completed. Flight test will be completed by March 1984. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1984		FY 1985		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	88	$1,755	71	$1,059	159	$2,814
O&MN Install. "O" Level				-0-		-0-
O&MN Install. (NAMT)			(1)	$9		9
APN-5 Spares		$1,054				1,054
GRAND TOTAL						$3,887

Installation Date: Installation will be accomplished at the Organizational level. The NAMT kit will be contractor installed.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APS-116 (OSIP 95-84)

Models of Aircraft Affected: S-3A

Description/Justification:

Ten percent of the AN/APS-116 Shop Replaceable Assemblies (SRAs) have been identified as being responsible for over 50 percent of the AN/APS-116 failures. These SRAs are to be replaced with current technology SRAs that will increase the Mean Flight Hours Between Failure (MFHBF) of the AN/APS-116 to 500 hours from the present 39 hours. The SRAs to be replaced include: Low Noise Radio Frequency (RF) Amplifier, Low Voltage Traveling Wave Tube (TWT) Power Supply, Antenna Drive, Antenna Shock Isolators, and Quick-Disconnect Oil Fittings. Replacement of the existing SRAs will provide the reliability improvement necessary to remove the AN/APS-116 from the RISE summary.

Development Status: Development has been completed on the new SRAs, which are in engineering test at Texas Instruments. No installation kits are necessary, and Approval for full production (AFP) is not required. The new SRAs are a direct replacement for the existing SRAs. An Avionics Change (AVC) is required to document the modification and associated Integrated Logistic Support (ILS) impact. A flight test will be performed by Naval Air Test Center (NATC) to verify satisfactory operation of the modified radar.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,235	17	$3,320	50	$8,223	41	$7,138	47	$8,660	157	$28,576
O&MN Install. "I" Level				-0-								-0-
APN-6 Spares				$516		$2,716		$2,842				6,074
GRAND TOTAL												$34,650

Installation Data: Installation of the new SRAs will be accomplished at the Intermediate level. No airframe changes are required.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: S-3A Weapon System Improvement Program (Redesignated S-3B) (OSIP 2-85)

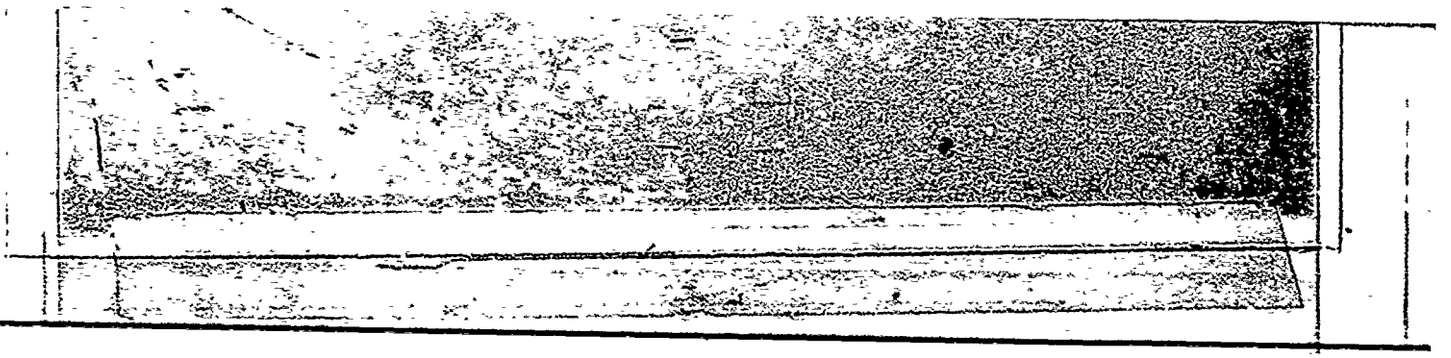
Models of Aircraft Affected: S-3A

Description/Justification:

The S-3A Weapon System Improvement Program (WSIP), redesignated S-3B, will increase the effectiveness of the S-3A throughout its useful service life by providing improvements in detection, classification, localization, and attack capabilities.

NDCP W0489-AS, approved by SECNAV in June 1981, authorized development of improved ASW capabilities through use of new accustic processing techniques. Capability to use in-development sonobuoys will be provided. On-board processing, display and control systems will be expanded to provide new capabilities without operator overload. ASW and surface search capability will be enhanced by increased range to permit earlier detection of surfaced submarines, submarine periscopes and small surface vessels. Inverse Synthetic Aperture Radar (ISAR) capability will provide standoff identification of surface targets. The ESM system will be improved to increase its frequency coverage and bearing accuracy. HARPOON launch capability and chaff and flare dispensing for self defense will be added.

Development Status: DNSARC (milestone IIB) review occurred 24 February 1981. NDCP W0489-AS Revision 1 was approved by SECNAV on 6 June 1981. The TEMP (No. 149-1) was approved by OPNAV on 10 September 1981. RDT&E,N Program Element Number 64217N applies. Major program milestones include the Navy Preliminary Evaluation (NPE) (December 1984) OT-IIA (February-March 1985), approval for limited production (ALP) (May 1985), TECHEVAL (October 1985-January 1986), OPEVAL (February-June 1986), and approval for full production (AFP) (August 1986).



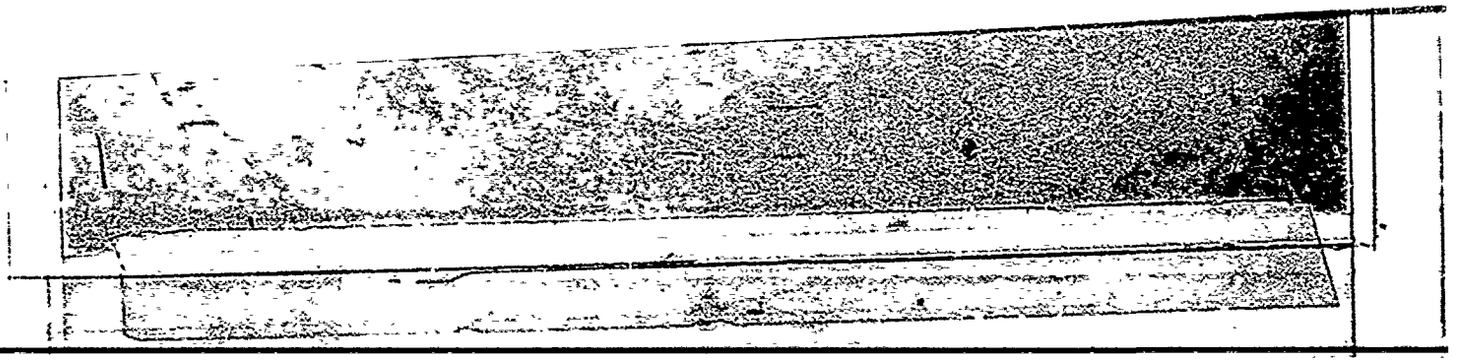
OSIP 2-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$74,240	39	$286,713	47	$303,904	47	$210,741	25	$94,250
O&MN Install.						$8,621		$15,419		$15,889
O&MN Training		$5,309		$525		$2,867		$1,130		
APN-6 Spares		$3,681		$53,856		$72,293		$70,631		$14,668

	FY 1990		FY 1991		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					160	$ 969,848
O&MN Install.		$14,963		$7,042		61,934
O&MN Training						9,831
APN-6 Spares						215,129
GRAND TOTAL						$1,256,742

Installation Data: The kits will be installed by contractor field teams at Navy facilities.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: ICS Communications Control Group (OSIP 77-85)

Models of Aircraft Affected: S-3A

Description/Justification:

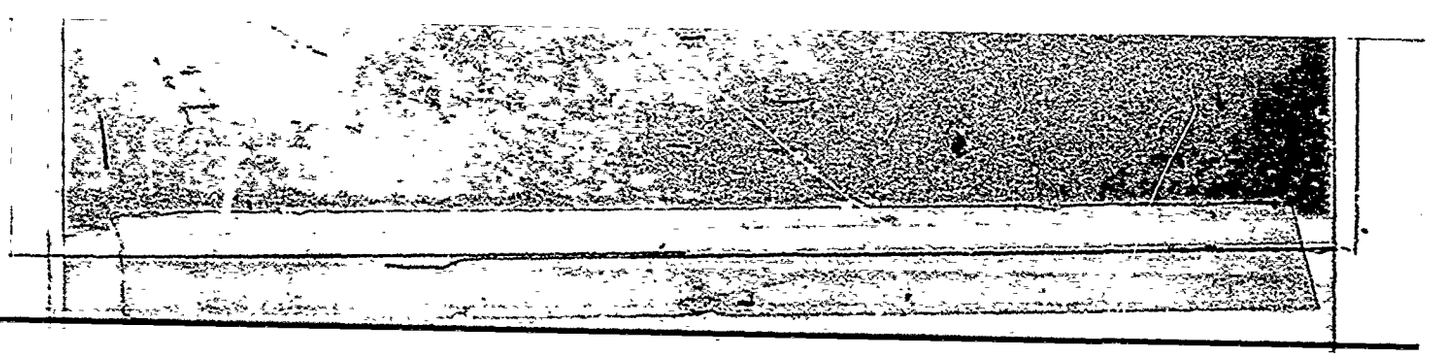
The inter-communication system (ICS) communications control group presently installed in the S-3A has consistently been unreliable resulting in a high percentage of the aircraft being operationally degraded. These sets of equipment will be replaced by an ICS communication control group of new design. This new set will feature state-of-the-art large scale integration and microprocessor technology in place of the hard wired logic existing in the present set and will substantially reduce the number of components required to generate and process all of the communications signals. Application of current technology will result in significantly improved reliability and maintainability characteristics. This change is necessary to accommodate future changes such as the ARC-182 radio, JTIDS and the Global Positioning System (GPS). This change would result in a proposed increase of the Mean Time Between Failure (MTBF) to 500 hours from the present 15 hours.

Development Status: An Aeronautical Equipment Reliability Maintainability Improvement (AERMIP) program for development of the new communication control group is in process at the Naval Air Development Center, Warminster, PA. Approval for full production (AFP) is expected in December 1984. RDT&E,N Program Element Number 25633N and project number W1041 apply.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	19	$8,053	45	$9,473	45	$10,027	48	$11,321	157	$38,874
O&MN Install. "O" Level		-0-								-0-
O&MN Trainer Install.				$60						60
O&MN Factory Training				$107						107
APN-6 Spares		$2,018		$4,682						6,700
GRAND TOTAL										$45,741

Installation Data: Installation will be at organizational level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Standard Central Air Data Computer (SCADC) (OSIP 78-85)

Models of Aircraft Affected: S-3A

Description/Justification:

The airspeed altitude computer set (AACS) senses, processes and transmits air-mass data to display instruments and other related aircraft systems. This data is used for flight control and navigation. The CP-1077 computer, the main weapons replaceable assembly in this system, exhibits an abnormally high failure rate and low mean flight hours between failure (217 hours) requiring frequent costly calibration at depot level. The Navy has developed a Standard Central Air Data Computer (SCADC) which will replace the CP-1077 computer. This SCADC will be form, fit and functionally compatible with the existing unit.

Development Status: The SCADC will be adapted to the S-3A through the use of AVCS/AERMIP funds. Approval for full production (AFP) of the basic SCADC will be obtained by the fourth quarter FY 1984 when the first S-3A unit becomes available for flight test in FY 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	7	$5,029	79	$10,394	74	$10,306	160	$25,729
O&MN Install. "O" Level		-0-						-0-
APN-6 Spares		$259		$2,998				3,257
GRAND TOTAL								$28,986

Installation Data: Installation will be at the Organizational Level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Control Servo Upgrade (OSIP 79-85)

Models of Aircraft Affected: S-3A

Description/Justification:

Flight control inputs from the pilot and co-pilot control sticks are transmitted to the control servo by means of a control cable system. The control servo's translate these inputs into the proper control surface movements to safely control the S-3A. When a control servo fails, the emergency flight control system is required to operate the aircraft to a safe landing. Leakage of hydraulic fluid from these control servos is the primary reason for its low Mean Flight Hours Between Failure (MFHBF) of 350 hours. The proposed modification will replace the seals in the servo's with a three piece "T" seal and internal modification. This modification will result in the control servo's experiencing an MFHBF equivalent to that now experienced by the spoiler servo. The control servo's MFHBF is expected to be 1,500 hours.

Development Status: The material for the new control servo seal is available. Navy testing and approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	56	$1,664	89	$1,171	15	$209			160	$3,044
O&MN Install.			(28)	$576	(94)	$2,012	(38)	$647		3,235
APN-6 Spares		$136		$170		$34				340
GRAND TOTAL										$6,619

Installation Data: Installations will be accomplished by Naval Air Rework Facility (NARF) Alameda personnel during Standard Depot Level Maintenance (SDLM) and by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Turbine Air Bearing (OSIP 81-85)

Models of Aircraft Affected: S-3A

Description/Justification:

The Environmental Control System (ECS) regulates temperature and pressure to the cabin and environment, provides avionic cooling, aircraft stores heating, windshield defogging, and maintains temperature control of the aircrew. The present turbine bearings and fan structure are exhibiting an extremely low Mean Flight Hour Between Failure (MFHBF), placing large manhour demands upon organizational maintenance, causing catastrophic failures of the ECS assembly, and causing a higher than necessary workload at the depot repair facility. This program will provide airfoil bearings in lieu of steel bearings with an attendent 80 percent increase in MFHBF, eliminate a resonant fan deficiency with the assosciated catastrophic fan failure, eliminate more than 20 turbine parts, and significantly reduce manhour demands.

Development Status: The airfoil bearing and fan are being developed by Air Research Corporation. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	25	$1,182	74	$1,753	61	$1,529			160	$4,464
O&MN Install.			(25)	$260	(74)	$613	(61)	$519		1,392
APN-6 Spares		$263		$504		$538				1,305
GRAND TOTAL										$7,161

Installation Data: Installation will be accomplished by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Right Hand Aft Avionics Rack (OSIF 82-85)

Models of Aircraft Affected: S-3A

Description/Justification:

The switching logic unit (SLU) performs all switching of communications command, control, and information signals. Connector unseating caused by deflection of connector support beam and connector shells of the right aft avionics rack has been identified as a source of poor SLU performance. The Navy and Air Force are conducting a joint program to standardize rack design. A candidate design will mount to the existing aircraft shock mounts, will be form, fit, and functionally interchangeable with the existing rack, and meet Military Standards. Installation of this rack will solve the SLU performance and eliminate manhours required to reseat the SLU into its connector.

Development Status: A joint Navy and Air Force program conducted preliminary testing and outlined the requirements for the new standardized rack. A prototype rack is installed in a test aircraft at the Naval Air Test Center, where operational evaluation and environmental testing will be accomplished. Two racks were installed at NAS North Island for testing and evaluation and will be completed in August 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	25	$2,345	85	$3,020	50	$1,880			160	$7,245
O&MN Install.			(25)	$100	(85)	$340	(50)	$200		640
APN-6 Spares			$185	$782						967
GRAND TOTAL										$8,852

Installation Data: Installation will be accomplished by contractor field team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: ASN-130 Inertial Navigation System (OSIP 29-86)

Models of Aircraft Affected: S-3A

Description/Justification:

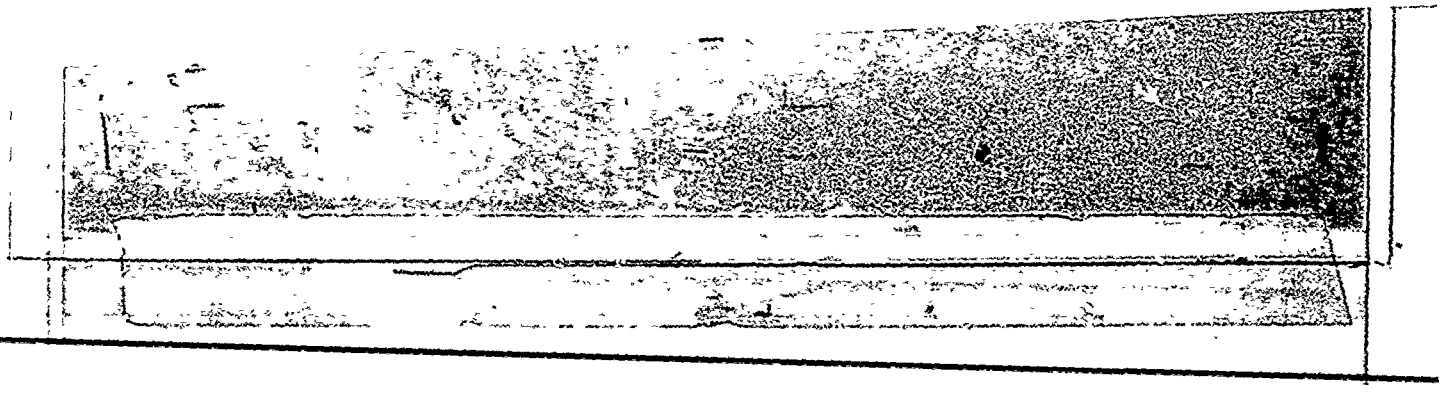
The AN/ASN-92 inertial navigation system is a significant readiness degrader for the S-3A and has been at the top of the common avionics Readiness Improvement Status Evaluation (RISE) report for the last year. This change would replace the three Weapon Replaceable Assembly (WRA) AN/ASN-92 system with the single WRA AN/ASN-130 currently flying in the F/A-18. Additionally, an interface device would be required to adapt the AN/ASN-130 to the S-3A. The proposed change would increase the Mean Flight Hours Between Failure (MFHBF) from 27 hours for the AN/ASN-92 to 500 hours for the AN/ASN-130 and interface device.

Development Status: The design and testing of the interface device is being funded by the Aeronautical Equipment Reliability/Maintainability Improvement Program (AERMIP) which started in the third quarter of FY 1982. Approval for full production (AFP) on the ASN-130 will be received in the third quarter of FY 1985.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$4,787	55	$17,643	48	$14,788	45	$14,675			160	$51,893
O&MN Install.			(12)	$33	(55)	$152	(48)	$132	(45)	$124		441
O&MN Software				$500								500
APN-6 Spares		$81		$481		$984						1,546
GRAND TOTAL												$54,380

Installation Data: Installations will be by a Naval Air Rework Facility (NARF) Field Team at North Island and Cecil Field. For configuration purposes and logistic support consideration, this change should be installed on a squadron by squadron basis.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Flight Control System Mod (OSIP 132-84)

Models of Aircraft Affected: US-3A

Description/Justification:

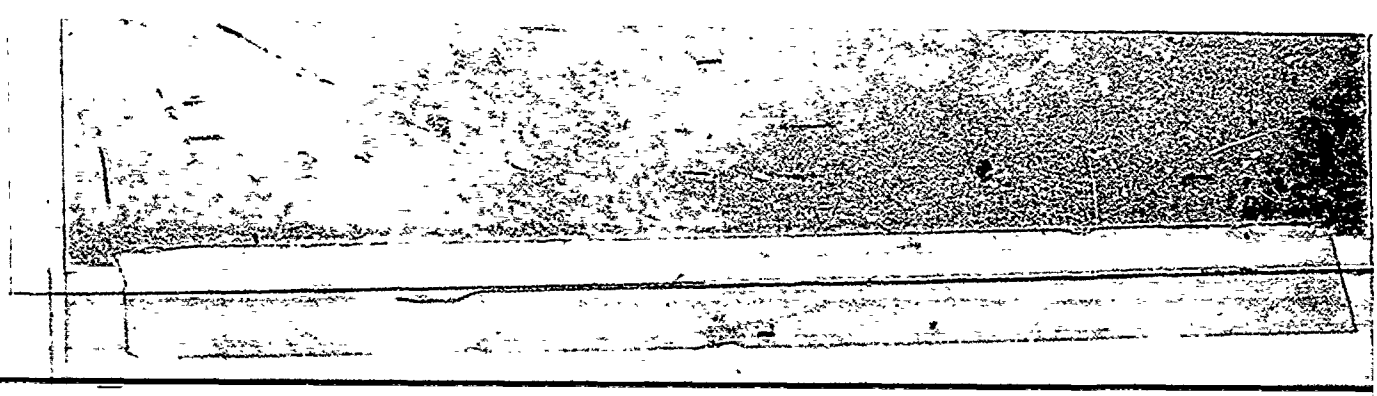
In US-3A Navy Preliminary Evaluation (NPE) and Board of Inspection and Survey (BIS) trials, the Naval Air Test Center (NATC) reported several flying quality deficiencies that limit the mission capabilities of the aircraft and adversely influence safe operation. In 1975 a systematic re-evaluation of the flight control system was undertaken to define a set of flight control system modifications that offer improvement without degradation. Through extensive analysis, simulation, and flight test, a modification package has emerged which resolves three separate problems: increased elevator authority in the landing configuration (ability to cope with more mistrim than is now possible), decreased elevator authority in high speed tactical flight (less sensitivity in high speed dashes), and adequate control authority after loss of both hydraulic systems (emergency system now installed is adequate to return for landing but questionable during landing and rollout). The flight testing has included both land and sea based trials. In all cases, pilot reaction has been highly favorable.

Development Status: Development and testing of the flight control system modification is complete.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$652	2	$1,243			3	$1,895
O&MN Install.			(1)	$66	(2)	$132		198
APN-6 Spares				-0-				-0-
GRAND TOTAL								$2,093

Installation Data: Installation will be accomplished by contractor field mod team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Standard Central Air Data Computer (SCADC) (OSIP 30-86)

Models of Aircraft Affected: US-3A

Description/Justification:

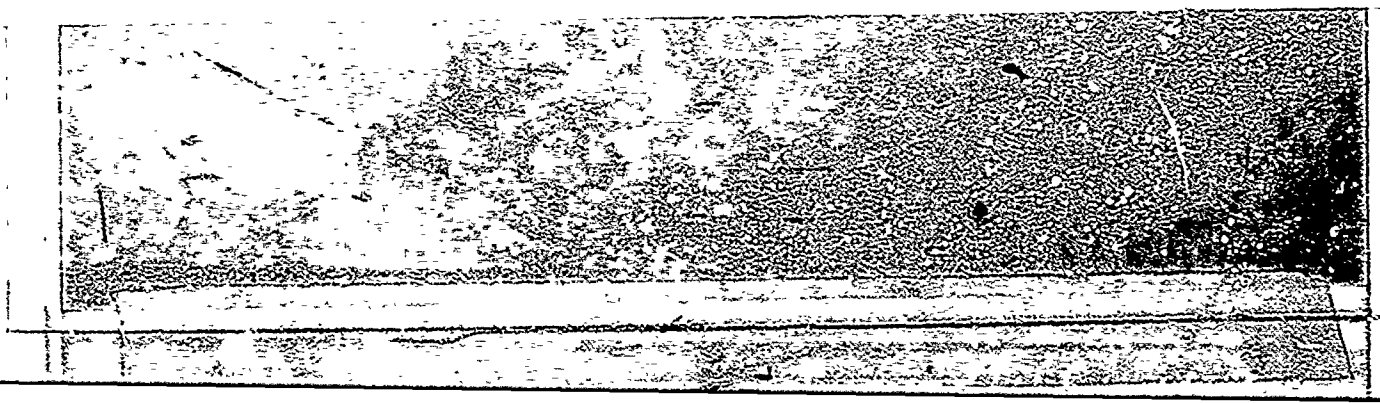
The airspeed altitude computer set (AACS) senses, processes and transmits air-mass data to display instruments and other related aircraft systems. This data is used for flight control and navigation. The CP-1077 computer, the main weapons replaceable assembly in this system, exhibits an abnormally high failure rate and low mean flight hours between failure (61 hours) requiring frequent and costly calibration at depot level. The Navy has developed a Standard Central Air Data Computer (SCADC) which will replace the CP-1077 computer. This SCADC will be form, fit and function compatible with the existing unit.

Development Status: The SCADC will be adapted to the S-3A through the use of AVCS/AERMIP funds. Approval for full production (AFP) of the basic SCADC will be obtained by the fourth quarter FY 1984 with the first S-3A unit available for flight test in FY 1984.

Project Financial Plan:

	FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	5	$888	1	$139	6	$1,027
O&MN Install. "O" Level		-0-				-0-
AFN-6 Spares		-0-				-0-
GRAND TOTAL						$1,027

Installation Data: US-3A airframe kit installations will be accomplished at the Organizational Level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Anti-Collision Strobe Light (OSIP 31-86)

Models of Aircraft Affected: US-3A

Description/Justification:

The US-3A operates in areas of high traffic density which grows in volume each year. The aircraft is required to perform in-flight refueling operations and day/night operations. These operational requirements create a need for increased visibility of the aircraft to maintain an adequate margin of safety. Installation of anti-collision strobe lights is necessary to provide the additional visibility and safety.

Development Status: The anti-collision strobe lights to be used are in the Navy inventory, and a new Approval for Production (AFP) is not required. The Naval Air Rework Facility (NARF) Alameda will perform the system integration and develop the installation kit.

Project Financial Plan:

	FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	6	$298		$10	6	$308
O&MN Install. "O" Level		-0-				-0-
APN-6 Spares		$10				10
GRAND TOTAL						$318

Installation Data: Airframe kit installation will be accomplished at the Organizational Level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Passive Detection System Improvements (PDS) (JSIP 49-82)

Models of Aircraft Affected: E-2C

Description/Justification:

Changes in the nature of the threat, since the Passive Detection System (PDS) (ALR-59) was designed, and Fleet experience with the operator workload for the present configuration, require increasing the capability of the memory and making internal changes in one Weapon Replaceable Assembly (WRA). These changes will allow the following additional functions: (a) Special Pulse Repetition Interval (PRI) modulation detection, (b) automatic scan rate measurement, and (c) passive emitter location. Software changes will be needed in the PDS program as well as in the E-2C central computer (L-304) program.

Development Status: The contract has been executed for incorporation of the improvements in production E-2C Aircraft #69 which was delivered in February 1982.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	9	$9,404	9	$9,030	12	$12,808	12	$13,577	12	$14,376	6	$7,609
O&MN Install.			(3)	$969	(7)	$2,846	(9)	$4,392	(12)	$5,856	(12)	$5,856
APN-6 Spares		$2,092		$3,913				-0-				

OSIP 13-82

Project Financial Plan (Cont'd):

	FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5					60	$ 66,890
O&MN Install.	(12)	$5,856	(5)	$2,440		28,234
APN-6 Spares						6,005
GRAND TOTAL						$101,129

Installation Data: Installation will be accomplished by a contractor mod team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: TRAC-A (Weapon Improvement) (OSIP 64-83)

Models of Aircraft Affected: E-2C

Description/Justification:

The sidelobes of a radar antenna permit jamming signals to enter the receiver and reduce the range of target detection. As jamming power increases through advances in technology; the threat to operational use of the radar increases. Since the radar in an E-2C is its primary detection capability, a jammer is its principal threat. The TRAC-A is a new antenna and associated interfacing hardware for the radar which will permit the E-2C to keep pace with the jamming threat. Production incorporation aircraft #81 will have the complete installation. Aircraft #'s 78, 79 and 80 will have interface hardware only. Kits marked * include antennas for those three aircraft kits. This program modifies the E-2C aircraft by installing two ECP's:

(a) ECP-300 installs the new antenna and an 8 channel rotary joint.

(b) ECP-306 installs two additional side lobe jammer cancellers.

Development Status: RDT&E,N Program Element Number 24152N refers to the new antenna (ECP-300) only. OT IV and OT IV conducted in May and June 1982 resulted in continued production. These changes were incorporated in FY 1982 production aircraft #A-81.

OSIP 68-83

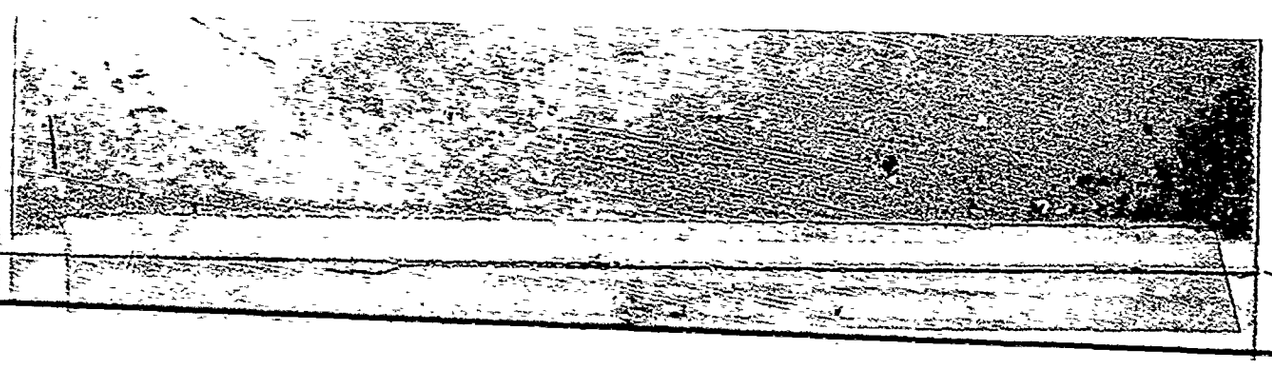
Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	8*	$26,445	11**	$38,755	12	$46,653	12	$49,448	12	$54,128
C&MN Install.					(6)	$780	(11)	$1,430	(12)	$1,560
APN-6 Spares		$4,952		$3,414		$1,555		$1,643		$1,728

	FY 1988		FY 1989		FY 1990		FY 1991		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$55,637	3***	$10,068					70	$281,134
C&MN Install.	(12)	$1 560	(12)	$1,560	(12)	$1,560	(5)	$545		8,995
APN-6 Spares		$1,703		$1,644						16,639
GRAND TOTAL										$306,768

* 6 each ECP-306 kits, 7 each new radomes and 2 each retrodomes.
** 11 each ECP-306 kits, 6 each new domes and 3 each retrodomes.
*** 3 each retrodomes.
\# 2 each 300/306 installations plus 3 each dome only installations.

Installation Data: Installation will be accomplished at the contractor's plant.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: ARC-182 Combination Radio (OSIP 27-84)

Models of Aircraft Affected: E-2C

Description/Justification:

The AN/ARC-182 combination radio is a new radio for most tactical aircraft. It provides VHF-FM (30-88MHz), VHF-FM (108-156MHz), VHF-AM/FM (156-174MHz) and UHF-AM/FM (225-400MHz) secureable voice communications. Navy Decision Coordinating Paper W0661-CC approved the combination radio AN/ARC-182 for tactical aircraft, including E-2 aircraft.

Development Status: The radio is being developed under RDT&E,N Program Element Number 24163N, Project W0661CC. Estimate an approval for full production (AFP) is anticipated in the second quarter of FY 1984. Production effectivity is aircraft #95.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	5	$2,232	20	$8,992	20	$9,521	16	$8,063	11	$5,868
O&MN Install.					(5)	$387	(20)	$1,547	(20)	$1,547
APN-6 Spares		$462		$1,202		$379				

	FY 1989		FY 1990		FY 1991		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,129					74	$35,805
O&MN Install.	(16)	$1,237	(11)	$851	(2)	$155		5,724
APN-6 Spares								2,043
GRAND TOTAL								$43,572

Installation Data: Installation will be accomplished by contractor field team, keyed to squadron deployments.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Vertical Control Surface (OSIP 148-84)

Models of Aircraft Affected: E-2C

Description/Justification:

This program is for the replacement of wear, fatigue, and corrosion prone components in the E-2C vertical tail surfaces. Incorporation of this change will remove the two year old flight speed restriction, enhance flutter and fatigue safety margins and reduce scheduled and unscheduled maintenance manhours currently being expended on the E-2C vertical control surface by 55 to 65 percent.

Development Status: Three incidents of inflight loss of E-2/C2 vertical tail surface components in 1980 and 1981 resulted in a 250 knot flight restriction being imposed on all E-2/C-2 aircraft. An extensive Navy/contractor investigation plus instrumented ground and flight testing identified the design improvements required. ECP-332 incorporates increased diameter hinge bolts, new type bearings, stainless steel bushings, increased strength fittings and improved bearing seals. ECP-332 has been approved for production incorporation in the last aircraft of the FY 1984 buy to be delivered in February 1985.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	9	$971	38	$1,746	30	$1,456					77	$ 4,173
O&MN Install.			(4)	$828	(26)	$3,952	(34)	$5,047	(13)	$2,113		11,940
APN-6 Spares		$88		$85		$43						216
GRAND TOTAL												$16,329

Installation Data: Installation will be accomplished by Naval Air Rework Facility (NARF) North Island during Standard Depot Level Maintenance (SDLM) and by the contractor during the E-2C OMNIBUS II update.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Computer Recorder Reproducer (OSIP 18-86)

Models of Aircraft Affected: E-2C

Description/Justification:

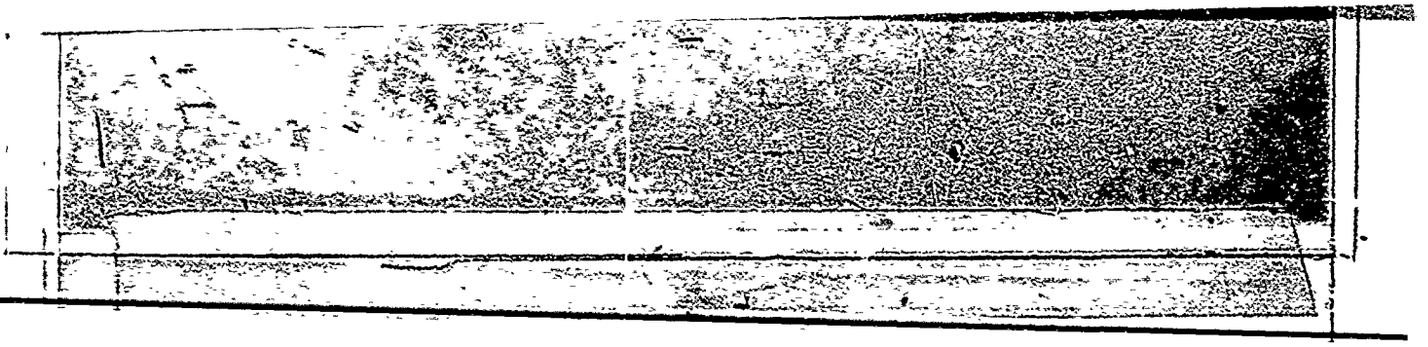
The recorder/reproducer for programming the central computer in model E-2C aircraft is at the limit of its capacity for current programs and is required to load initiative data for JTIDS. New programs are being developed to cope with the changing threat, and these will require expansion of recorder/reproducer capacity. The expanded programs are required to interface with systems on board aircraft carriers in support of items set forth in the SOR. The intent is to make the replacement recorder/reproducer form, fit, and function compatible with the computer and fully interchangeable with the existing article. Production incorporation is in aircraft #105.

Development Status: Several vendors have developed potentially acceptable articles. Selection will be made for production E-2C aircraft based on evaluations in progress. This is an embedded item not requiring approval for full production (AFP).

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	24	$2,571	24	$2,282	24	$2,416	14	$1,492	86	$ 8,761
O&MN Install.		-0-								-0-
APN-6 Spares		$418		$438		$469				1,325
GRAND TOTAL										$10,086

Installation Data: Installation will be accomplished by fleet personnel.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: High Speed Processor (HSP) (OSIP 26-86)

Models of Aircraft Affected: E-2C

Description/Justification:

This WRA replaces two memory modules and their associated power supplies in the central processor (CP) cabinet. The HSP increases the CP track capacity four-fold and allows the radar and passive detection systems to operate throughout their available surveillance volume without the current sectoring restrictions. While this increase in capacity is accomplished through the dense packaging of current computer technology, the reliability threshold of the CP has not been compromised. This capaoility is the foundation of extending the next phase of the E-2C update (FY 1988). Effectivity will be the first aircraft i. the FY 1985 buy (#A102).

Development Status: HSP hardware development is complete. Qualification testing and DTE/OTE flight testing of hardware and functional software completed August 1983.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		FY 1991	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$13,231	12	$13,863	12	$14,675	12	$15,533	12	$16,442	12	$17,404
O&MN Install. "O" Level		-0-										
APN-6 Spares		$2,540		$2,662		$2,847						

OSIP 26-86

Project Financial Plan (Cont'd):

	FY 1992		TOTAL	
	Qty	Cost	Qty	Cost
APN-5	12	$18,422	84	$109,570
O&MN Install. "O" Level				-0-
APN-6 Spares				8,049
GRAND TOTAL				$117,619

Installation Data: Incorporation to be accomplished by the Fleet Organizational Activity.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Electronic Counter - Counter Measures (ECCM) (OSIP 27-86)

Models of Aircraft Affected: E-2C

Description/Justification:

The jamming threat to a radar can be minimized by current antenna technology and/or receiver modifications. The TRAC-A antenna (the first major redesign in the 20-year history of the E-2 series) is now in limited production as the initial step in the evolution of countering a growing threat acknowledged in agreed to intelligence. ECCM capability programmed for FY-86 production aircraft provides receiver subsystem modifications. These changes will augment the reduced sidelobes of the antenna pattern (increase detection in jamming environment), provide automated cues to the operators on best radar mode for different jamming levels and provide directional information of the jamming source for intercept with battle group fighters. Effectivity will be the first aircraft in FY-86 buy (A-108).

Development Status: Preproduction hardware in fabrication stage Flight testing of brassboard proceeding on schedule. Navy Preliminary Evaluation (NPE) involving both DT/OTE completed early September 1983. Flight testing continues through 1984 with the second NPE November 1984 to verify readiness prior to release LLT funds for production.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		FY 1990		FY 1991	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$2,807	12	$42,311	12	$44,788	12	$47,409	12	$50,182	12	$53,119
O&MN Install.							(12)	$5,030	(12)	$5,030	(12)	$5,030
APN-6 Spares				$12,185		$8,689		$9,103				

OSIP 27-86

Project Financial Plan (Cont'd):

	FY 1992		FY 1993		FY 1994		FY 1995		FY 1996		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	12	$56,227	12	$59,513	7	$36,747					91	$393,103
O&MN Install.	(12)	$5,030	(12)	$5,030	(12)	$5,030	(12)	$5,030	(7)	$2,934		38,144
APN-6 Spares												29,977
GRAND TOTAL												$461,224

Installation Data: Installation will be accomplished by a contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: TC-4C Mod Update (OSIP 22-85)

Models of Aircraft Affected:

Description/Justification:

The TC-4C (modified Gulfstream I) incorporates all A-6 TRAM weapons system avionics in a simulated A-6 cockpit; providing an excellent Bombardier Trainer. This program will update the TC-4C A-6 cockpit to the 1986 A-6E TRAM configuration and provide improved instrumentation and other safety changes for the TC-4C.

The A-6 cockpit changes include:

(1) Addition of the A-6 Horizontal Situation Indicator (HSI), Vertical Gyro and Standby Compass.
(2) Wiring changes to allow relocation of cockpit control boxes to current A-6 configuration.
(3) Installation of the integrated missile panel and avionics interface unit.

TC-4C changes include:

(1) A new flight director and autopilot.
(2) Installation of a complete ICS system.
(3) Installation of an additional transformer/rectifier to allow the auxiliary power unit to provide backup power fo the TC-4C DC system.
(4) Hydraulic system changes to allow use of the auxiliary hydraulic system for ground maintenance.

Development Status: No hardware development is required. The new autopilot and flight director will be FAA approved commercial equipment. Other changes are primarily duplication of wiring to install A-6 equipment. Considerable nonrecurr effort is required for wiring design due to the unique TC-4C configuration.



OSIP 22-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$1,670	3	$1,625	4	$2,337			8	$5,632
O&MN Install.			(1)	$30	(3)	$91	(4)	$122		243
APN-6 Spares		$68		$143		$198				409
GRAND TOTAL										$6,284

Installation Data: TC-4C airframe modification will be accomplished by the support contractor during annual inspection/update. A-6 cockpit update will be accomplished by the contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: T-2B/C AN/ARC-159(V)5: UHF Transceiver (OSIP 103-85)

Models of Aircraft Affected: T-2B/C

Description/Justification:

The AN/ARC-52/51 UFH command radio system is currently installed in T-2B & C aircraft respectively. This equipment was first designed and produced in the 1950's. The technology is well over twenty years old. The AN/ARC-51/52 is failure prone and requires excessive maintenance and appears consistently on the RISE report. The AN/ARC-159 is one of the latest state-of-the-art UHF command radio communications systems. This equipment provides extended frequency range capability from 30-400 MHZ in four bands with a single guard frequency on each band. The system can, depending on desired configuration, be operated in plain/cipher relay and homing modes.

Development Status: The AN/ARC-159(V)5 system has been installed in Navy aircraft. Approval for full production (AFF) on the T-2B/C aircraft is expected in March 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	68	$1,635	68	$1,282	68	$1,328	204	$4,245
O&MN Trainer Install.				$30				30
O&MN Training				$40				40
APN-6 Spares		-0-						-0-
GRAND TOTAL								$4,315

Installation Data: Aircraft installation to be accomplished at organizational level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: T-2B/C AN/ARN-118 TACAN (OSIP 104-85)

Models of Aircraft Affected: T-2B/C

Description/Justification:

The AN/ARN-52 is currently installed in Navy aircraft. This equipment was first designed and produced in the early 1960's. The technology is now twenty to thirty years old which contributes to the excessive maintenance manhours required to maintain this equipment. The AN/ARN-52 is continually ranked high on the list of RISC items.

The AN/ARN-118(V) is the latest state-of-the-art TACAN system. This Collins Radio Corp built system is currently programmed to be installed in 13 Navy aircraft and has demonstrated high reliability and low maintenance requirements.

Development Status: ARN-118 is an off-the-shelf item currently in DOD service. Approval for full production (AFP) on the T-2B/C aircraft is expected in March 1984.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	68	$2,485	68	$2,214	68	$2,344	204	$7,043
O&MN Trainer Install.			(27)	$24				24
O&MN Factory Install.				$40				40
APN-6 Spares		$10		$11				21
GRAND TOTAL								$7,128

Installation Data: Active aircraft installation will be accomplished by Organizational Level Maintenance. Trainer installation will be accomplished by contractor.

MODIFICATION OF AIPCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: CT-39 Avionics Update Program (OSIP 28-86)

Models of Aircraft Affected: CT-39E/G

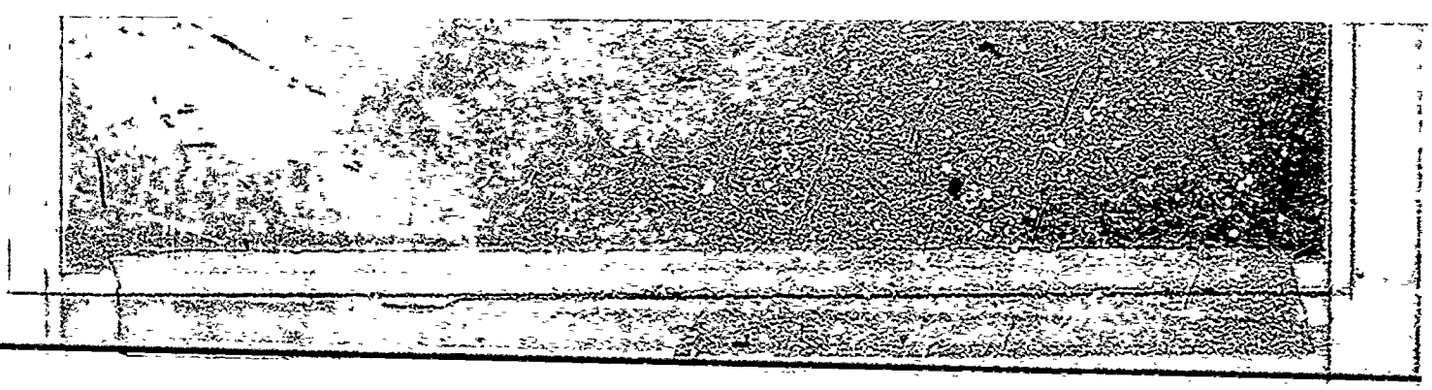
Description/Justification:

The current inventory of eighteen (18) CT-39E/G aircraft was acquired in five separate procurements during the period 1967-1975. The avionics package installed in each procurement series reflected equipment available at that particular time. As a result, the avionics configuration of the total CT-39 community is non-standardized. More importantly, much of the avionics of the earlier procurements is now outdated, approaching unsupportability, and causing a decrease in readiness. This is caused not only by decreasing reliability but also because the older equipments lack bit and piece parts to effect timely repairs in necessary turn around time. The high utilization rate of these aircraft (approximately 100 flight hours a month) along with their operational mission requirements both in and out CONUS demand state-of-the-art avionics. As an example, during transport of high ranking individuals, it often becomes necessary to provide priority communications over long distance and versatile SSB equipment is required. Such situations as long overseas flights, unreliable/unavailable foreign NAVAIDS, operations in proximity to hostile frontiers over buffer zones, and sustained operations in adverse weather conditions as well as flight in high density air traffic zones make it essential that these aircraft be equipped with a reliable, supportable and mission effective avionics suit to not only provide required mission capability but also insure the safety of passengers and crew.

In order to bring all 18 aircraft up to state-of-the-art in avionics and provide the requirements described above, the following list of equipments is required.

Quantity	Nomenclature	Quantity	Nomenclature
5	Collins 718U5 HF Sets	18	Eagle EB-2BCD (Crash position indicator)
5	Collins ARC-159 Transceiver		

Development Status: All items are FAA certified off-the-shelf and are operational in some Navy and/or commercial CT-39E/G aircraft.



OSIP 28-86

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	6	$266	6	$232	6	$245	18	$ 743
O&MN Install.	(6)	$84	(6)	$84	(6)	$84		252
O&MN Training		$1		$1		$1		13
APN-6 Spares		$43		$44		$48		135
GRAND TOTAL								$1,143

Installation Data: Installation will be accomplished by commercial Standard Depot Level Maintenance (SDLM) and Drive-in Mod.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: C-9B FAA Configuration Update (Commercial Service Bulletins) (OSIP 75-81)

Models of Aircraft Affected: C-9B

Description/Justification:

Federal aviation regulations require manufacturers of commercial aircraft and engines to investigate all discrepant conditions, failures, and potential safety problems reported by all certified operators. The results of these investigations with recommended corrective action are reviewed/approved by the Federal Aviation Agency (FAA) and provided to all operators as service bulletins. Each service bulletin is a complete technical directive that provides corrective change information or detailed modification instructions. To ensure a safe, reliable, FAA certified C-9B aircraft, and to provide a program that will assure continued life extension at minimum cost, the Navy must maintain configuration and integrity compatible with FAA certified commercial models by incorporation of applicable service bulletins. The incorporation of certain service bulletins also serves to preclude extensive repairs/repetitive inspections such as aft pressure bulkhead reinforcement. Crew equipment requirements in accordance with FAA directives will be incorporated to ensure maximum safety in case of emergency. Engine service bulletins will be used to standardize configuration such as Pratt and Whitney SB 4597 eighth stage bleed valve incorporation. This will ensure safe, reliable engines. These changes will be accomplished on 2 active and 17 reserve aircraft.

Development Status: All service bulletins have been accomplished on commercial aircraft and engines. Prototype verification has been previously accomplished and approved by the FAA.

OSIP 75-81

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$158		$198		$713				$2,200		$2,400
O&MN Install.						$55		$58		$61		$126
O&MNR Install.						$468		$543		$558		$1,074
APN-6 Spares						$107				$320		$346

	FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$2,500		$2,646				$10,815
O&MN Install.		$126		$126		$126		678
O&MNR Install.		$1,074		$1,074		$1,074		5,865
APN-6 Spares		$364		$381				1,518
GRAND TOTAL								$18,776

Installation Data: Installation will be accomplished by the contractor.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Ground Proximity Warning System (OSIP 71-85)

Models of Aircraft Affected: UC-12B

Description/Justification:

The ground proximity warning system installation for the UC-12B airplane is established as a CNO requirement reference CNO letter of 5 October 1979 ser 506E/C 331224. The GPWS to be installed will provide audio warning to the pilot and is an airspeed enhanced system. The Sperry SPZ200 auto-pilot installed in the UC-12B has a potentiometer type airspeed sensor allowing an interface connection by the GPWS.

Development Status: This system is commercially available and has been installed and successfully operating in the Cessna Citation. Will be FAA Certified - approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	20	$1,220	45	$2,286			65	$3,506
O&MN Install.			(20)	$19	(45)	$43		62
O&MN Training		$10						10
APN-6 Spares		-0-						-0-
GRAND TOTAL								$3,578

Installation Data: Installations will be performed by the maintenance support contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: VLF/Omega System Improvement (OSIP 75-85)

Models of Aircraft Affected: UC-12B

Description/Justification:

This system improvement modifies existing software in 26 existing units and purchases 39 new units to complete fleet install. These system modifications inhibit stations which are providing unreliable or intermittent signals, improves the failure warning systems, corrects certain frequency conversion factors to accommodate 200 BAUD Multiple Shift Keying (MSK) VLF signals, provides for manual entry of data commands (Heading and TAS), adjusts heading syncro scaling factors for smoother autopilot performance and provides for interleaving VLF and Omega diurnals for improved Lane Ambiquity Resolution (LAR). It increases airborne range and accuracy and improves ground initialization accuracy and time required. These modifications will correct discrepancies documented during Bureau of Inspection and Survey (BIS) trials (AT-51, 81, 83, 106, 108, 109, 110, 113) and Operational Test 682 OT-III. Potential savings in fuel cost resulting from expanded use of Omega direct routing can exceed 2 percent of annual fuel costs or approximately 160 thousand dollars per year.

Development Status: Design engineering is complete. Engineering drawings must be updated. Performance verification and service instructions must be completed. Will be FAA Certified - approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	39	$1,484			39	$1,484
O&MN Install.			(39)	$5		5
APN-6 Spares		-0-				-0-
GRAND TOTAL						$1,489

Installation Data: Installations will be performed by the maintenance support contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Mission Avionics (OSIP 64-81)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

The Minimum Essential Emergency Communication Network (MEECN) Master Plan established the requirement to expand present capabilities of the strategic military communication network. This necessitates modification of the existing VERDIN receive and transmit terminal with the Enhanced VERDIN Processor (EVP), 1600 Baud Kits, and modifications to the very low frequency (VLF) power amplifier (PA). New VLF processors will also improve reliability and maintainability and reduce the weight and volume substantially. Other improvements, such as expanded VERDIN battery life, replacement of the unreliable time standard clock, and hook-up of the channel one interface between VERDIN and the TACAMO message processor will greatly improve the overall capability and interoperability of the TACAMO VERDIN system.

Development Status: The EVP has completed prototype development and has passed all environmental, EMI, EMC and Tempest tests. Several EVP airborne software modes are still under development. The 1600 Baud Kits have completed development at Rockwell International, Newport Beach, CA and have been verified and tested by the Naval Ocean Systems Center. Both the 1600 Baud Kits and the Enhanced VERDIN Processor were Navy operationally tested 15 January to 1 February 1979. Power Amplifier equipment modification analyses are being conducted to determine the minimum modifications necessary to expand operation of the VLF PA and cooling system to 1600 baud. Provisional approval for service use (PASU) was granted in June 1980 as well as limited production approval for 87 systems.

Project Financial Plan:

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$4,801		$3,071		$8,839		$3,059		$9,969		$6,145
O&MN Install.										$26		$89
O&MN Training						$75						
APN-6 Spares		$481		$834		$57		$262				

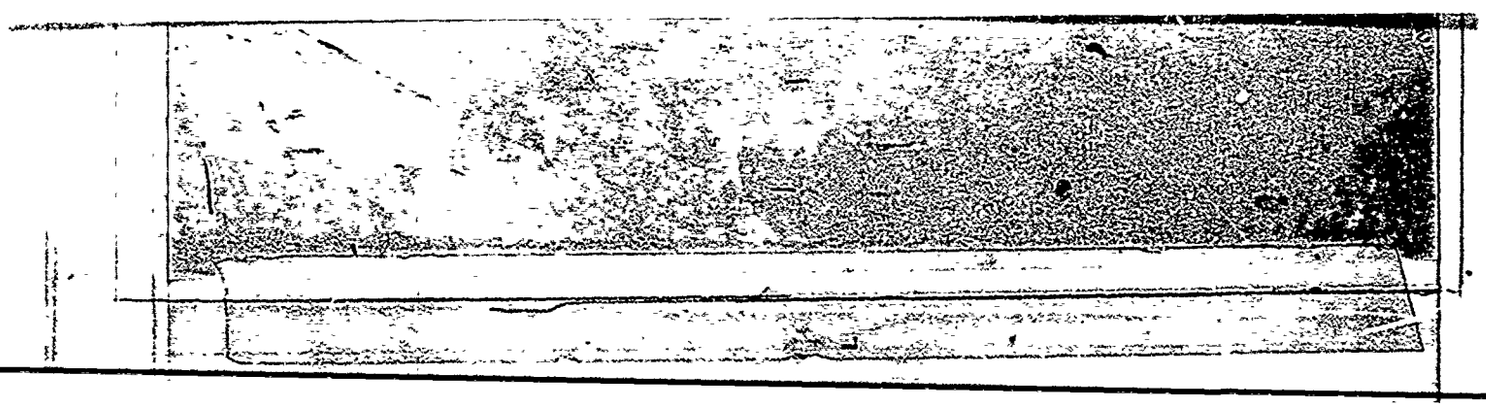
OSIP 64-81

Project Financial Plan (Cont'd):

	FY 1987 Qty	FY 1987 Cost	TOTAL Qty	TOTAL Cost
APN-5			*	$35,884
O&MN Install.		$58		173
O&MN Training				75
APN-6 Spares				1,634
GRAND TOTAL				$37,766

*Total aircraft to be modified is 18.

Installation Data: Installation will be accomplished by Naval Electronic System Engineering Activity by Field Team.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: EMP Layer I (OSIP 77-81)

Models of Aircraft Affected: EC-130G/Q

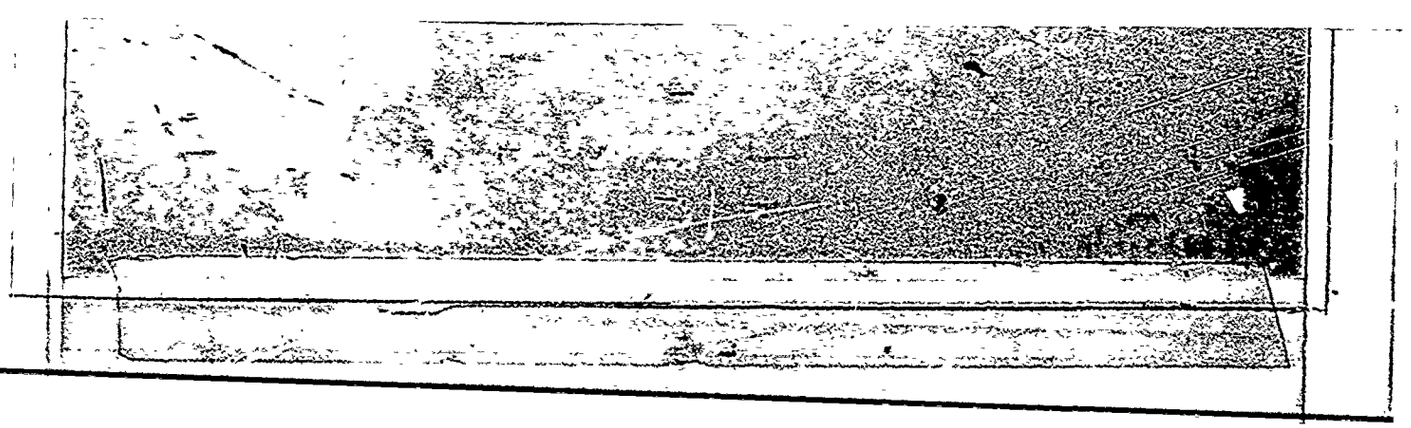
Description/Justification:

There is a JCS requirement for nuclear hardening in TACAMO Aircraft. The specifics of the TACAMO EMP hardening program are classified. It consists of devices to improve the electromagnetic shielding of the fuselage as well as general filtering throughout the aircraft. This includes such items as feed-through capacitors and specially designed filters. Where filtering is not practical voltage limiters (spark gaps, arrestors, diode limiters, etc.) will be utilized to reduce the energy presented to the units.

Development Status: RDT&E.N Program Element Number 11402N applies. TECHEVAL and OPEVAL are complete. Approval for limited production (ALP) was granted in March 1983.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$10,257	5	$15,431		$2,139	1	$2,542		$1,176
O&MN Install.					(2)	$1,102	(3)	$1,732	(1)	$577
O&MN Factory Trng.		$339		$119						
APN-6 Spares				$380				$663		



OSIP 77-81

Project Financial Plan (Cont'd):

	FY 1987		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			7	$31,545
O&MN Install.	(1)	$577		3,988
O&MN Factory Trng.				458
APN-6 Spares				1,043
GRAND TOTAL				$37,034

Installation Data: Installation will be accomplished during Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: EMP Hardening (Layer II) (OSIP 32-82)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

TACAMO EMP Hardening Layer II consists of shielding electronic wiring. This is accomplished through individual cable shields or through compartmentalization. Additionally, the hardening consists of general filtering throughout the aircraft on paths where it does not disrupt normal signal flow. Where filtering is not practical voltage limiters will be utilized to reduce the energy presented to the units. The installation of EMP hardening kits will add an estimated 450 pounds to the aircraft weight.

Development Status: RDT&E,N Program Element Number 11402N applies. TECHEVAL and OPEVAL are complete. Approval for limited production (ALP) was granted in March 1983.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	1	$8,281	5	$12,453		$2,240	1	$2,879		$472
O&MN Install.					(2)	$1,537	(3)	$2,270	(1)	$819
O&MN Factory Trng.		$55		$859						
APN-6 Spares								$621		

OSIP 32-82

Project Financial Plan (Cont'd):

	FY 1987		TOTAL	
	Qty	Cost	Qty	Cost
APN-5		$523	7	$26,848
O&MN Install.	(1)	$819		5,445
O&MN Factory Trng.				914
APN-6 Spares				621
GRAND TOTAL				$33,828

Installation Data: Installation will be accomplished by the prime contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: PSK Modem (OSIP 39-82)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

The OM-43 Modem currently in use in TACAMO aircraft is out of production and unavailable. The obsolete Modem has shown questionable operation in airborne application.

Development Status: Off-the-shelf items are currently being tested by the Navy as well as a new Modem being developed by NAVELEX. The best item approved for full production at the time of procurement will be incorporated.

Project Financial Plan:

	FY 1982		FY 1983		FY 1985		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	8	$1,698			10	$1,515			18	$3,213
O&MN Install.					(8)	$138	(10)	$347		485
O&MN Training						$50				50
APN-6 Spares				$51[illegible]		$526				1,098
GRAND TOTAL										$4,846

Installation Data: Installation will be accomplished by contractor field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Solid State Teletypewriter (SST) (OSIP 83-83)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

The present teletypewriter used aboard TACAMO aircraft is 25 years old, unreliable, requires a large number of maintenance manhours and is unable to provide the required new ASCII capabilities. Significant improvement in operator interface, reliability, maintainability, weight and input power could be obtained by going to a solid state typewriter with edit transpose capabilities. The volume of the new teletypewriter is 1.8 cubic feet, and weight is 50 pounds.

Development Status: An SST that is in DOD inventory (U.S. Air Force) has been selected. Integration into the TACAMO system will be performed by the Naval Avionics Center. Integration testing is complete. Due to funding constraints, this program is broken into two buys (FY 1983 and FY 1985). The SST will be MIPR'ed from the USAF and installed at "O" level. OPEVAL is scheduled for October 1984.

Project Financial Plan:

	FY 1983		FY 1985		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$482	14	$1,006	18	$1,488
O&MN Install. "O" Level				-0-		-0-
O&MN Training				$23		23
APN-6 Spares		$75		$110		185
GRAND TOTAL						$1,696

Installation Data: Installation will be accomplished by the fleet at organizational level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Survivable Time Standard (STS) (OSIP 29-85)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

The present 0-1622/ARC rubidium frequency and time standard (FTS) supporting VERDIN has a history of poor reliability, maintenance problems and insufficient battery operation time (15-30 minutes). Further, the present system cannot supply the time code output required by TACAMO, necessitating calibration from a source external to the airplane. The new FTS system will consist of two crystal time standards and one satellite receiver. The satellite receiver will be able to receive accurate time updates from the Navy's TRANSIT satellite system and also maintain accurate time for an extended period. The crystal standards will be capable of maintaining accurate time for extended periods (50-72 hours) when aircraft power is not available. This new system will greatly enhance TACAMO in its ability to accomplish its mission. Difference in weight and space will be negligible from the present FTS.

Development Status: Two prototype crystal time standards with backup battery capability have been developed and tested. One prototype satellite receiver has been developed and tested. A contract was let in January 1982 to develop preproduction time systems for environmental, bench, reliability and technical evaluation testing. Approval for full production (AFP) is expected in January 1985. RDT&E,N Program Element Number 11402N applies.

OSIP 29-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$1,940	8	$3,340	8	$[illegible]959					18	$7,239
O&MN Install.			(2)	$11	(7)	$37	(6)	$32	(3)	$16		96
O&MN Factory Trng.		$65										65
APN-6 Spares		$200		$622		$520						1,342
GRAND TOTAL												$8,742

Installation Data: Installation will be accomplished by the Naval Avionics Center by field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Multiple Satellite Access (OSIP 30-85)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

The present TIP II design utilizes wing tip pods with selectable antennas to obtain reception from various satellites. The requirement for multiple satellite access was identified by COMOPTEVFOR. Further details are classified.

Development Status: The Naval Avionics Center (NAC) is developing an integration kit and testing will be completed in FY-84. RDT&E,N Program Element No. 11402N applies. Change consists of the addition of like components of the OE-242 system; therefore. approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4	$1,326	4	$813	10	$933					18	$3,072
O&MN Install.			(4)	$226	(4)	$226	(4)	$226	(6)	$340		1,018
O&MN Training		$104										104
APN-6 Spares		$164		$140		$268						572
GRAND TOTAL												$4,766

Installation Data: Installation will be accomplished by the Naval Avionics Center by field team.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Replacement HF Radio (ARC-190) (OSIP 105-85)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

The present AN/ARC-232 HF Radio, utilized in TACAMO since 1964 is out of production, obsolete and difficult to support. The AN/ARC-190 HF Radios are in use with the USAF and will be installed in Marine KC-130F aircraft. Mission studies indicate that the capabilities of the AN/ARC-190 will adequately fulfill the TACAMO HF Radio requirements.

Development Status: The AN/ARC-190 has been fully developed by the Air Force. NAC will develop an installation kit and radio modificaton kits to adapt this radio to the TACAMO aircraft and mission. A Test and Evaluation of the prototype installation in the TACAMO R&D aircraft will be conducted by NATC.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	9	$5,851	4	$1,550					13	$ 7,401
O&MN Install.			(5)	$1,380	(7)	$1,610	(1)	$230		3,220
O&MN Training		98								98
APN-6 Spares		$312		$76						388
GRAND TOTAL										$11,107

Installation Data: Installation will be accomplished by the contractor.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AFSATCOM Single Channel Transponder (SCT) Update (OSIP 106-85)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

Current scheduled changes to MEECN AFSATCOM procedures require that TACAMO install SCT capabilities. The Air Force is generating contracts to modify existing AFSATCOM (ARC-171) equipment; production contracts will be executed in FY 1984. TACAMO will need to MIPR funds to the Air Force to provide assets to modify TACAMO AFSATCOM equipment. The modifications will be substitution of 2 printed circuit boards and a modification to a position on a selector switch in the control box. Failure to incorporate this modification will result in loss of two UHF AFSATCOM injection links.

Development Status: Air Force completed development of technical requirement for the proposed MEECN changes in 1982. Evaluation of prototypes were completed in 1983 and procurement contracts initiated. The Navy will be provided one preproduction kit in July 1984 for evaluation.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	20	$6,008			20	$6,008
O&MN Install.			(20)	$61		61
O&MN Training		$35				35
APN-6 Spares		$77				77
GRAND TOTAL						$6,181

Installation Data: Control box modification will be accomplished by Air Force repair activity on an "as received basis." Navy organizational level will install and test printed circuit boards.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AFSATCOM/MILSTAR Terminal Update (OSIP 5-86)

Models of Aircraft Affected: EC-130G/Q

Description/Justification:

Approved changes in Air Force AFSATCOM Program require TACAMO to incorporate replacement modems into the AFSATCOM terminals to maintain operational requirements. The Air Force is planning to procure its required assets from Linkabit. To minimize costs and technical development problems, the Navy will procure the same modems. Technical details are classified. Failure to incorporate this modification will result in the loss of two vital injection links to TACAMO.

Development Status: Air Force is currently procuring prototype modems for test and evaluation. Navy will monitor these tests and utilize data for approval for full production (AFP) request. The Navy will develop a TACAMO modification kit for the new modems and conduct flight tests. OPEVAL will be conducted by COMOPTEVFOR.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	15	$10,586	5	$3,279					20	$13,865
O&MN Install.			(12)	$288	(7)	$161	(1)	$23		472
O&MN Training		$98								98
APN-6 Spares		$1,569		$551						2,120
GRAND TOTAL										$16,555

Installation Data: Installation will be accomplished at Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Avionics Systems Improvement Program (ASIP) (OSIP 78-83)

Models of Aircraft Affected: C-130F, KC-130F, KC-130R

Description/Justification:

This program will replace the APN-70B and the SCR-718 in the C-130F and the KC-130Fs with a LTN-72 inertial navigation system (INS), a LTN-211 OMEGA, and a True Airspeed System. This program will replace the APN-59B with the APS-133 weather radar in the C-130Fs, KC-130Fs, and the KC-130R. Additionally, it will replace the ARC-38A with the ARC-190 HF radio in the C-130F and the KC-130F. The above changes remove old tube-type avionics equipment and replace with new solid state systems. Some of the old equipment is out of production and none of these old systems have a Mean Time Between Failure (MTBF) better than 40 hours while the new equipment has an excess of 1000 hours MTBF.

Development Status: All the new equipment has completed development. The LTN-72 INS, the LTN-211, and the ARC-190 are currently being procured on the new production KC-130T aircraft.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	23	$8,717	23	$6,113	15	$3,697					61	$18,527
O&MN Install.			(2)	$106	(21)	$620	(23)	$678	(15)	$444		1,848
O&MN Training				$300								300
APN-6 Spares		$388		$644		$320						1,352
GRAND TOTAL												$22,027

Installation Data: Installation will be accomplished concurrent with commercial Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Avionics Systems Improvement Program (ASIP) Phase Two (OSIP 117-84)

Models of Aircraft Affected: C-130F, KC-130F, KC-130R

Description/Justification:

The proposed program will replace the old VHF communications and navigation equipment, TACAN, and related wiring with modern equipment and wiring, add a Ground Proximity Warning System (GPWS), and install direct air support center (DASC) provisions. The above changes remove old tube-type equipment and replace with new solid-state systems. These new systems enhance capability and reliability.

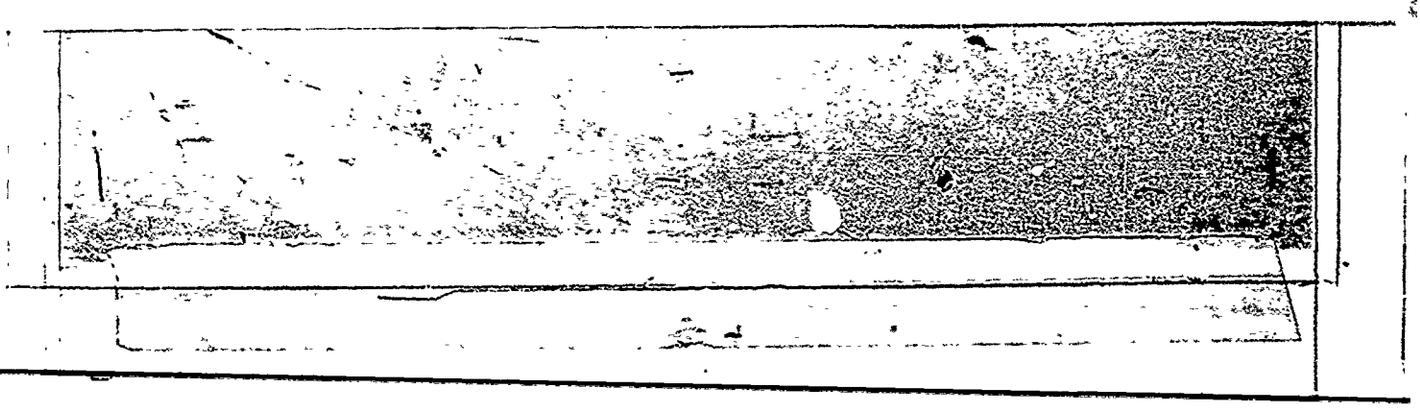
The installation of the DASC provisions will allow an AN/UYQ-3A to be operated from the aircraft. Installation of GPWS in all Navy C-130 aircraft was identified in a NAVSAFECEN Accident Report Recommendation (ARRE) No. 770691A.

Development Status: Developed and being procured on the new production KC-130T aircraft.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	23	$5,899	23	$4,961	15	$2,957			61	$13,817
O&MN Install.			(23)	$2,469	(23)	$2,370	(15)	$1,500		6,339
O&MN Training				$100						100
APN-6 Spares		$951		$249		$67				1,267
GRAND TOTAL										$21,523

Installation Data: Installation will be accomplished concurrent with commercial Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Cargo Handling System (OSIP 19-85)

Models of Aircraft Affected: KC-130F/C-130F

Description/Justification:

The A/A32H-4A Cargo Handling System for the C-130 aircraft is a dual rail system providing greater expediency and safety in air logistics and air delivery. This system is presently installed by the USAF and NATO countries in various models of the C-130 aircraft. This system is compatible with the Marine Corps MCL-1 Cargo Loaders and the pallets and nets will supplement the ground support equipment for other transport aircraft. Installation of the dual rail system requires the addition of adapters to the 3,600-gallon fuel tank installation in the KC-130. COMNAVAIRPAC Msg 020129Z Jul 77 strongly recommended to CNO that the KC-130 aircraft be equipped with this system. Twenty-eight rail/roller kits have been obtained from USAF surplus.

The A/A32H-4A system is compatible with the USAF C-141 and C-5 aircraft systems. Another compatible system is being prototyped in a Navy RH-53 for future consideration for installation in cargo helicopters.

Development Status: Development is complete. The system is presently installed on 5 LC-130R, 4 C-130F and 18 KC-130R aircraft.

OSIP 19-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	16	$1,210	17	$1,295	10	$864			43	$3,369
O&MN Install.			(16)	$270	(17)	$286	(10)	$169		725
O&MN Training		$10								10
APN-6 Spares		$110								110
GRAND TOTAL										$4,214

Installation Data: Installation will be accomplished concurrent with commercial Standard Depot Level Maintenance (SDLM).

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Helo Air-To-Air Refueling (OSIP 20-85)

Models of Aircraft Affected: KC-130F, KC-130R

Description/Justification:

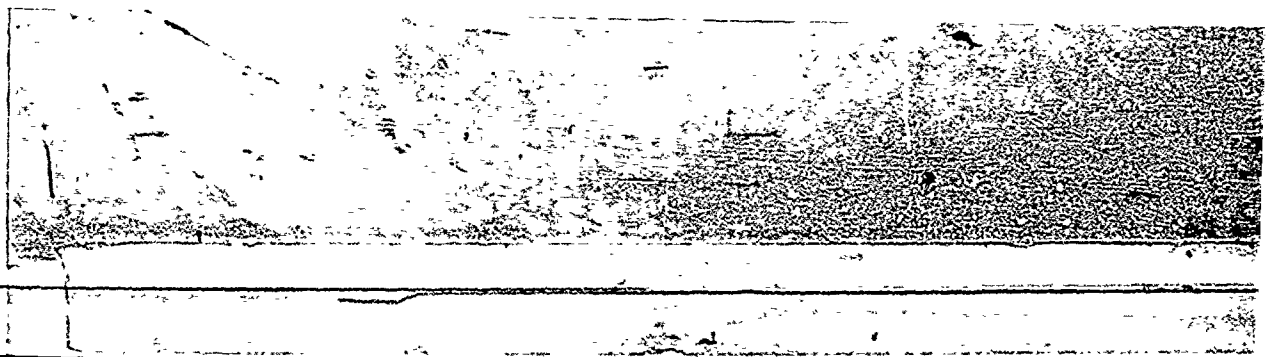
The existing KC-130F/R aerial refueling system is designed for high speed aerial refueling of fixed wing tactical aircraft. With the introduction of the CH-53E into the Marine Corps inventory, it is necessary to add to the KC-130 aircraft the capability for low speed aerial refueling of rotary wing aircraft. The Air Force has HC-130 aircraft designed for aerial refueling of rotary wing aircraft and this proposed program will make use of the HC-130 equipment. The major changes will involve use of the HC-130 large low speed paradrogue assembly, a surge control valve, and modifications to the KC-130 refueling pods to accept the large paradrogue. After the changes are incorporated and before an aerial refueling mission maintenance and/or flight crew personnel will install either the small high speed paradrogue or the large low speed paradrogue depending upon the aircraft to be refueled. The paradrogues cannot be changed in flight.

Development Status: Developed and being procured on new production KC-130T aircraft.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	21	$1,912	21	$1,427	12	$863			54	$4,202
O&MN Install.			(19)	$114	(19)	$114	(16)	$96		324
APN-6 Spares		$117								117
GRAND TOTAL										$4,643

Installation Data: Installation will be accomplished concurrent with commercial Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Avionics System Improvement Program (ASIP) Phase III (OSIP 70-85)

Models of Aircraft Affected: C-130F, KC-130F, KC-130R

Description/Justification:

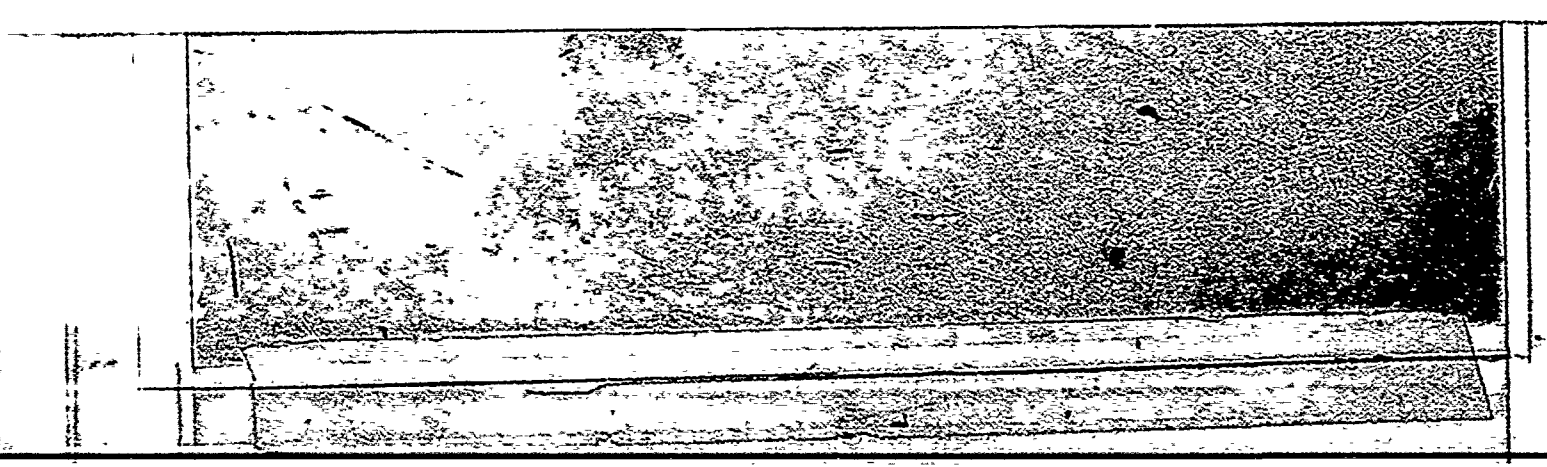
The existing C/KC-130F/R Aircraft are equipped with old vacuum tube electronics and early 1950s systems technology. These old systems are expensive to maintain in both money and manpower. This modification program will replace these old systems with new and current state-of-the-art equipment. Systems to be installed, changed or modified during this phase of the ASIP are as follows: (1) Solid State Propeller Synchronization, (2) Compass System, (3) HF Secure Voice Capability, (4) Combined Altitude Radar Altimeter (CARA), (5) Engine Instruments, (6) Flight Director, (7) Automatic Direction Finding Improvement, (8) Inter-communication Systems Improvement, (9) Microwave Landing System, (10) Autopilot Improvement. These improvements will provide a substantial increase in safety, reliability and maintainability.

Development Status: Development is complete with the exception of CARA which will complete development and obtain approval for full production (AFP) by July 1984. All other improvements contained in this OSIP, except microwave landing system, were incorporated into the KC-130T aircraft.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	7	$6,737	23	$8,169	23	$7,001	8	$2,473			61	$24,380
O&MN Install.			(7)	$707	(23)	$2,323	(23)	$2,323	(8)	$808		6,161
O&MN Training		$385		$475		$100		$50				1,010
APN-6 Spares		$168		$731		$672						1,571
GRAND TOTAL												$33,122

Installation Data: Installation will be accomplished concurrent with contractor Standard Depot Level Maintenance (SDLM).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-167 and AN/AST-4 Pods (OSIP 119-83)

Models of Aircraft Affected: A-4, A-6, A-7

Description/Justification:

The AN/ALQ-167 Pod is an ECM device designed to work against U.S. Navy fighter radars to simulate threat defense ECM systems. The AN/AST-4 electronically simulates several types of threat anti-ship missile seeker systems. These podded devices were first introduced into the fleet in 1980 and proved exceptionally useful in readiness exercises.

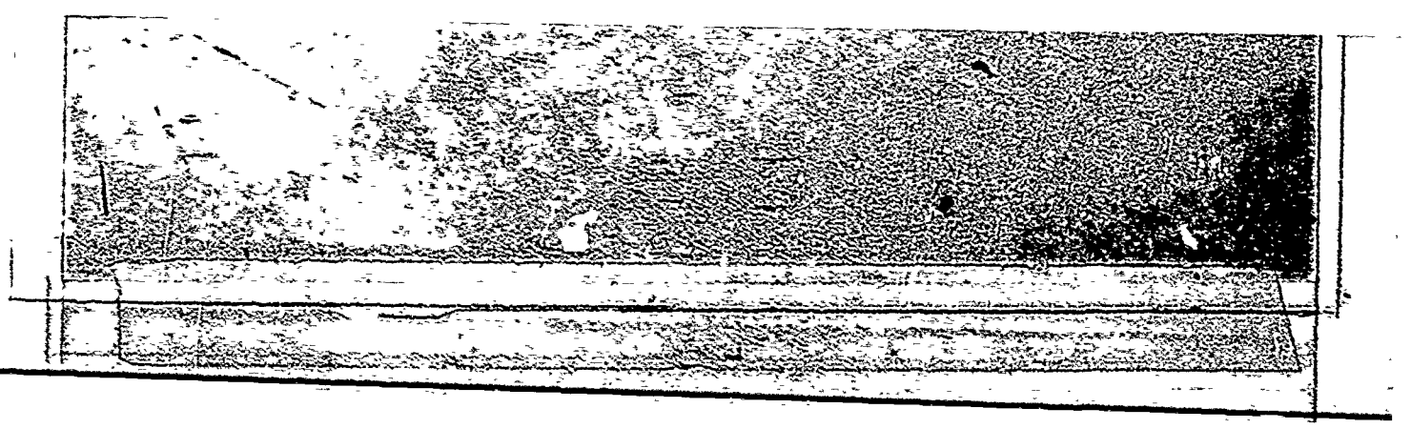
This program provides for the procurement and initial support of additional quantities of these pods for use by VC squadrons and other Fleet units. The inventory objective for the AN/ALQ-167 is 91 there are currently 49. The AN/AST-4 inventory objective is 37 with 26 in the current inventory.

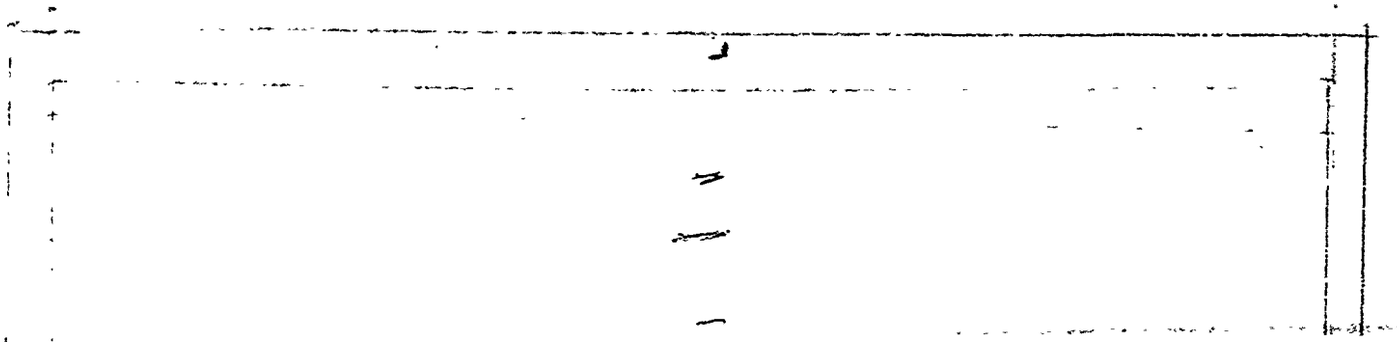
No aircraft modifications are required to use these pods.

Development Status: Both equipments are service approved and require no development.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$832		$2,350		$2,364		$1,825		$1,337
O&MN Install.						-0-				
APN-6 Spares						-0-				



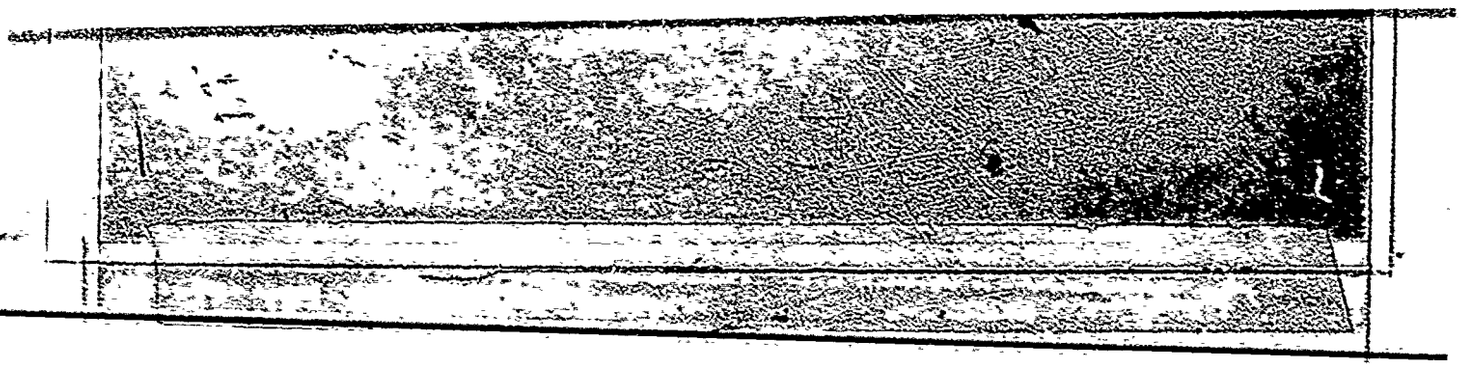


USIP 119-83

Project Financial Plan (Cont'd):

	FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$1,507		$1,699		$11,914
O&MN Install.						-0-
APN-6 Spares						-0-
GRAND TOTAL						$11,914

Installation Data: No aircraft modifications required. These pods have been qualified on all applicable aircraft.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: FEWSG; Simulator Set, Countermeasures, AN/ALQ-170(V)1 (OSIP 33-84)

Models of Aircraft Affected: Various

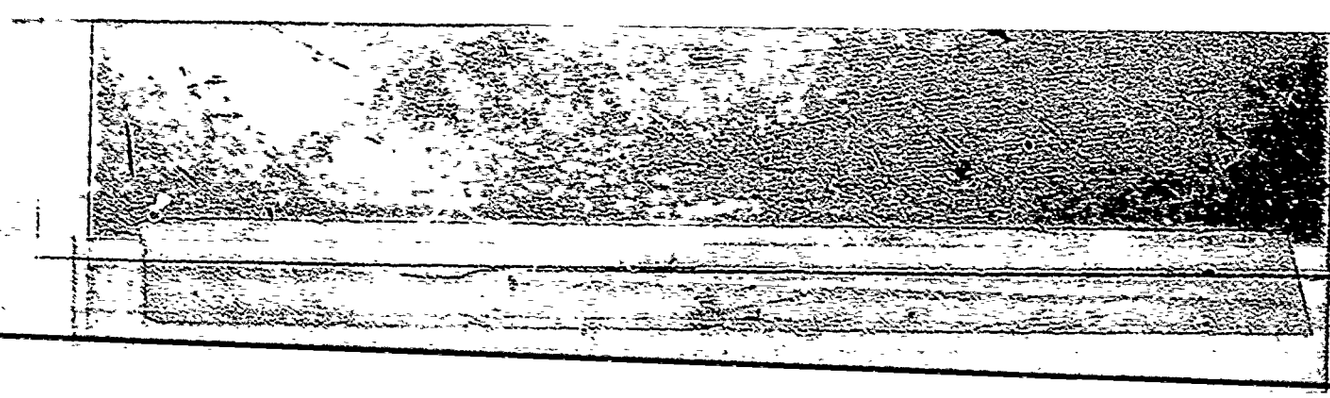
Description/Justification:

Fleet Electronic Warfare Support Group (FEWSG) is a separate command under the administrative and operational control of CINCLANTFLT. It provides support, with organic resources, to both Atlantic and Pacific Fleets. FEWSG is the nucleus of the Navy's "aggressor" (ORANGE) Force. It employs tactics, procedures, equipment vans, and the specially configured aircraft of VAQ-33/34 plus the two Navy NKC-135A aircraft to simulate various threats during TECHEVAL, OPEVAL, Fleet Readiness Exercises, and Fleet Operational Training. These aircraft are based at NAS, Key West (VAQ-33), and at the Pacific Missile Test Center, Point Mugu (VAQ-34).

As set forth in NDCP 0898-AA (FEWSG), a new series of missile simulators is required, to be mounted on high performance (EA-6A's, EA-4F's, and ETA-7C's) aircraft in order to simulate Antiship Missiles (ASM's) for Fleet exercises and training. Present systems simulate only older less complex threat missiles. New specific threat simulators and, equally important, simulators for non-specific threat categories are needed.

This program provides for the procurement and initial support of FEWSG's Simulator Set, Countermeasures, AN/ALQ-170(V)1. Separate actions have already been taken to prepare the FEWSG host aircraft to accommodate the new simulators to include rewiring and changes in cockpit display capability.

Development Status: The AN/ALQ-170(V)1 is now under development. The first Engineering Development Model (EDM) was fully tested and accepted by January 1984. The principal tests consisted of: pod certification, which was accomplished during the fourth quarter FY 1982; environmental testing, which was accomplished during the third quarter FY 1983; EMI and ECM/ECCM lab testing and reliability evaluation/improvement tests. Flight tests completed fourth quarter FY 1983 and evaluation was accomplished during the first quarter of 1984. Formal approval for full production (AFP) is not required since the equipment will see service only with FEWSG/VAQ-33/34. RDT&E Program Element No. 24575N applies.

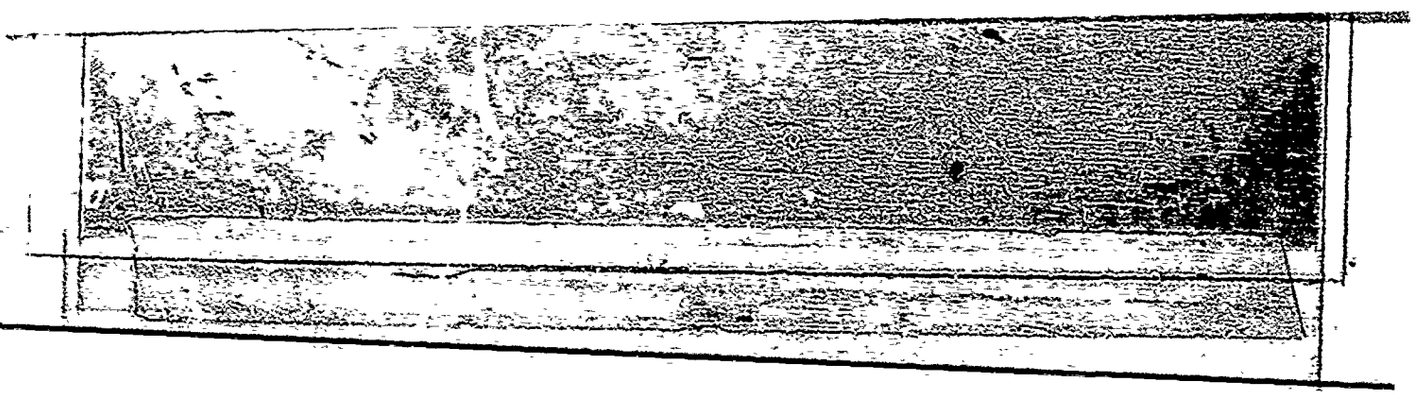


OSIP 33-84

Project Financial Plan:

	FY 1984		FY 1985		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	3	$12,421	7	$16,130	10	$28,551
O&MN Install.				-0-		-0-
APN-6 Spares		$1,895		$2,626		4,521
GRAND TOTAL						$33,072

Installation Data: No aircraft modifications required.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: FEWSG; Simulator Set, Countermeasures, AN/ALQ-170(V)2 (OSIP 14-85)

Models of Aircraft Affected: Various

Description/Justification:

Fleet Electronic Warfare Support Group (FEWSG) is a separate command under the administrative and operational control of CINCLANTFLT. It provides support, with organic resources to both Atlantic and Pacific Fleets. FEWSG is the nucleus of the Navy's "aggressor" (ORANGE) Force. It employs tactics, procedures, equipment vans, and the specially configured aircraft of VAQ-33/34 plus the two Navy NKC-135A aircraft to simulate various threats during TECHEVAL, OPEVAL, Fleet Readiness Exercises, and Fleet Operational Training. These aircraft are based at NAS, Key West (VAQ-33), and at the Pacific Missile Test Center, Point Mugu (VAQ-34).

As set forth in NDCP 0898-AA (FEWSG), a new series of missile simulators is required, to be mounted on high performance aircraft in order to simulate Antiship Missiles (ASM's) for Fleet exercises and training. Present systems simulate only older less complex threat missiles. New specific threat simulators and, equally important, simulators for non-specific threat categories are needed. Accordingly, a new series of ASM simulators is being designed for procurement for FEWSG aircraft.

This program provides for the procurement and initial support for a variant of the basic AN/ALQ-170(V)1 Countermeasures Simulator Set. Such a modified simulator would incorporate capability improvements and other state-of-the-art improvements which are needed to keep pace with new ASM threat data. Each variant expands the capability of the AN/ALQ-170 to cover one particular threat or family of threats. Major components of these variant simulators will be totally interchangeable with those of the basic AN/ALQ-170(V)1. In addition, the simulators will be compatible with the FEWSG aircraft which have been adapted to carry the AN/ALQ-170(V).

OSIP 14-85

Development Status: The AN/ALQ-170(V)2 is now under development and the follow-on variants will be derivatives of this program. The first variant EDM will undergo tests similar to those required prior to procurement of the basic AN/ALQ-170(V)1. These tests include: pod certification, which was accomplished during the fourth quarter FY 1982; environmental testing, which will be accomplished in the first quarter FY 1984; EMI and ECM/ECCM lab testing, which will be accomplished in the second quarter FY 1984; and reliability evaluation/improvement tests followed by flight tests and evaluation, which was accomplished in the third and fourth quarters FY 1984. Because of the commonality of components between the first variant EDM and the original AN/ALQ-170 EDM, testing should be less complex and time consuming. Formal approval for full production (AFP) is not required since the equipment will see service only with FEWSG/VAQ-33/34. RDT&E Program Element Number 24575N applies.

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$9,508		$14,423		$15,456	10*	$39,387
O&MN Install.		-0-						-0-
APN-6 Spares		$1,225		$2,182		$2,460		5,867
GRAND TOTAL								$45,254

* Simulators

Installation Data: The host aircraft are undergoing pylon wiring changes under FY 1979-1983 projects and will not require further mod for this new pod.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: FEWSG Power Update (OSIP 107-85)

Models of Aircraft Affected: ERA-3B

Description/Justification:

The FEWSG ERA-3B aircraft are equipped with four 27-KVA ram air turbine (RAT) generators to power the peculiar mission equipment. This power level does not provide the operational reliability required, offers no capability for growth and can be described as only marginally acceptable.

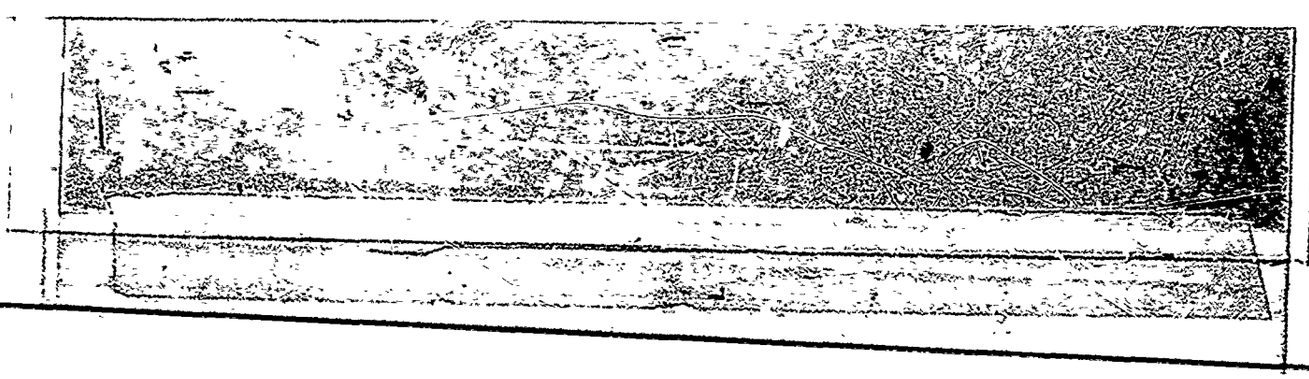
This program will provide for the procurement and initial support of replacement RAT generators capable of a 40-KVA output. The replacement units are interchangeable with the older units and no aircraft modifications will be required to install them.

Development Status: The 40 KVA RAT generator has been fully qualified for this application. No R&D is required. NARF nonrecurring is required to modify aircraft publications and to establish ILS plan.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	8	$2,275			8	$2,275
O&MN Install. "O" Level		-0-				-0-
O&M% Training				$40		40
APN-6 Spares		$355				355
GRAND TOTAL						$2,670

Installation Data: Installation will be accomplished at the organizational level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: FEWSG: NKC-135A APU (OSIP 108-85)

Models of Aircraft Affected: NKC-135A

Description/Justification:

Suitable ground support equipment needed for electrical power and engine starting is not readily available at all of the mission bases used by the NKC-135A aircraft. Advance staging of special support equipment peculiar to the aircraft is required in the event such bases are used. A self contained Auxiliary Power Unit (APU) installed in the NKC-135A aircraft will improve operating efficiencies by making the aircraft independent of these major support items and thereby extending possible operational areas to required mission bases not feasible at present.

Development Status: Several different commercial off-the-shelf APUs are available and are suitable for use in the NKC-135A aircraft. Contractor is currently conducting an engineering study to examine alternate equipment and configurations. Nonrecurring is required to prepare detail manufacturing drawings and tooling. No approval for full production (AFP) is required.

Project Financial Plan:

	FY 1985		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2	$2,155			2	$2,155
O&MN Install.			(2)	$472		472
APN-6 Spares		$221				221
GRAND TOTAL						$2,848

Installation Data: Installation will be accomplished by the contractor under a separate NAVELEX contract when aircraft downtime can be scheduled by COMFEWSG.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Sea Water Actuated Release System (SEAWARS) (OSIP 96-83)

Models of Aircraft Affected: A-4, A-6, A-7, AV-8, F-4, RF-8, F-14, F-18, S-3, T-2

Description/Justification:

SEAWARS is a sensing and activation device that attaches to the current manual parachute fitting and provides automatic release upon immersion in sea water. SEAWARS will preclude parachute entanglement and water dragging which are major factors in several aircrew drownings per year.

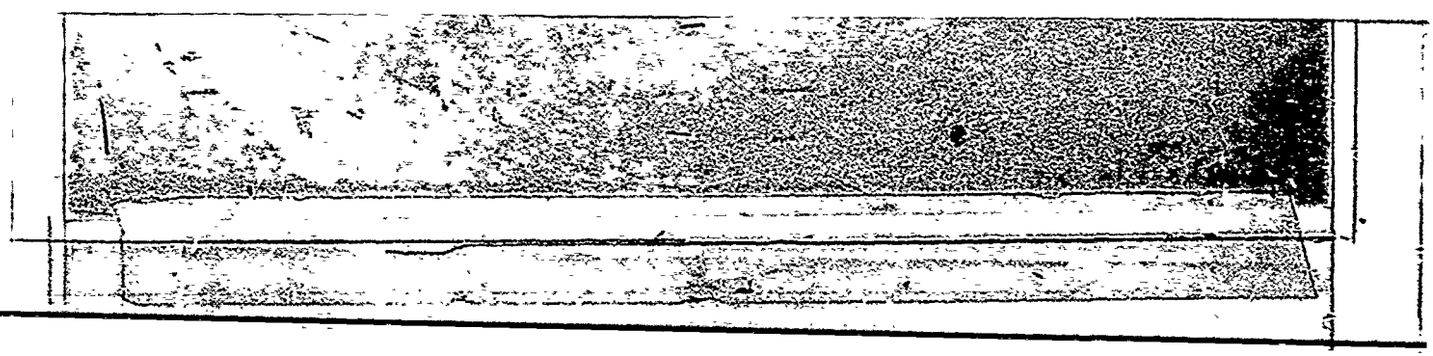
Development Status: Approval for full production (AFP) was received in the fourth quarter of FY 1983.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	2,250	$8,173	1,500	$5,052	1,485	$4,508	680	$2,152	5,915*	$19,885
O&MN Install. "O" & "I" Level						-0-				-0-
APN-6 Spares				$409		$389				798
GRAND TOTAL										$20,683

*Quantity represents kits.

Installation Data: Installation will be accomplished at organizational and intermediate levels.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ULQ-16 Pulse Analyzer Set (MITSI) (OSIP 125-84)

Models of Aircraft Affected: ASW Aircraft

Description/Justification:

The AN/ULQ-16 Pulse Analyzer Set is a carry-on adjunct to ASW aircraft ESM receiving equipment. The ULQ-16 mounts on a standard aircraft rack and weighs 35 pounds. When used with an aircraft ESM receiver, the ULQ-16 measures key parameters of received radar pulsed signals. The ULQ-16 Pulse Analyzer Set has been highly acclaimed during a lengthy period of Fleet trials, including ease of installation with only a small amount of operator training required.

Development Status: The AN/ULQ-16 has been approved for service use and has been in production since March 1982.

Project Financial Plan:

	FY 1984		FY 1985		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	22	$711	70	$3,358	92*	$4,069
O&MN Install.	(22)	$154	(70)	$514		668
APN-6 Spares		$198		$652		850
GRAND TOTAL						$5,587

* GFE only.

Installation Data: Installation and initial training is accomplished by contractor tiger teams and is estimated to take less than 2 days.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Replacement of RSSK-7 with SKU-2/A Survival Kits (OSIP 109-85)

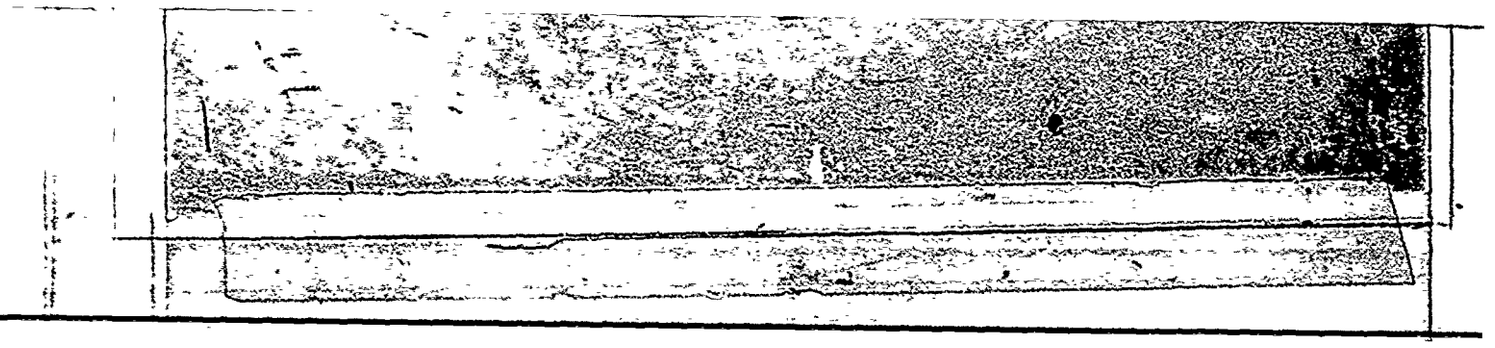
Models of Aircraft Affected: F-14A, A-6, KA-6D, RA-6A, EA-6B

Description/Justification:

The RSSK-7 survival kits have had a history of safety related problems. These include: (1) inadvertent survival kit opening during ejection or emergency egress, (2) impeded or no opening of the survival kit for raft deployment, (3) no actuation of the survival kit emergency oxygen system during ejection, and (4) deficient retention of the survival kit during ejection under negative-G conditions. The current situation is that two survival kit configurations exist in the fleet, one clearly safety deficient, actuated by two very different modes, both of which are in limited supply. As the service RSSK-7 attrites, the fleet must requisition twenty-nine components, using OPTAR funds, and assemble into an end item. This represents a potential increased safety hazard due to maintenance induced problems.

The cost of correcting the known deficiencies of the RSSK-7 is approximately sixty percent (60%) more than replacing all in service RSSK-7 survival kits with SKU-2/A. Failure to implement this change in existing aircraft will impact safety, logistics support and maintenance.

Development Status: ECP 849 (F-14A) and ECP 812 (A-6) replaced the RSSK-7 with the SKU-2/A survival kit in FY-78 and subsequent production aircraft as a CFE item. No development is required.



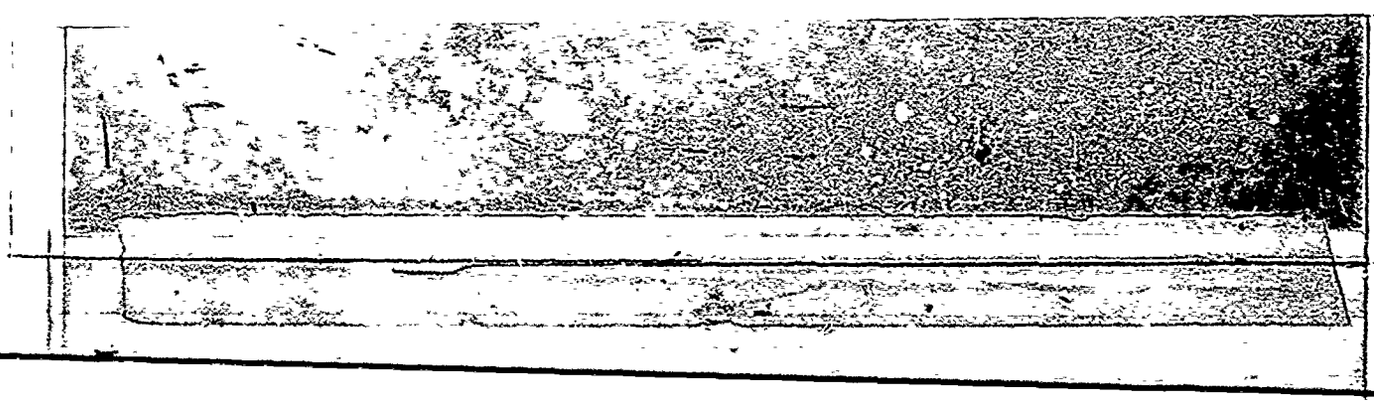
OSIP 109-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	519	$1,927	565	$1,903	350	$1,248	1,434*	$5,078
O&MN Install. "O" Level		-0-						-0-
APN-6 Spares		-0-						-0-
GRAND TOTAL								$5,078

*Quantity represents kits.

Installation Data: This modification shall be accomplished by fleet organizational level maintenance personnel via Air Crew Change (ACC).



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Provide Backstop to Preclude Over-Cocking of the Emergency Oxygen System Toggle on Seat Survival Kit (OSIP 110-85)

Models of Aircraft Affected: All Aircraft Utilizing RSSK-1, RSSK-8, SKU-2, SKU-3 Survival Containers

Description/Justification:

Misalignment in the pressure reducer toggle assembly can preclude oxygen system actuation during ejection. Lack of oxygen during and after seat ejection will result in hypoxic condition and potentially contribute to aircrew injury or death.

Development Status: Maintenance requirement cards have been changed to direct inspection of and correct positioning of the toggle, however the condition could still occur without a design change which will positively preclude it. The CFA has proposed a plan to define the change, test it and validate a retrofit kit.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	4,130	$2,300			4,130	$2,300
O&MN Depot Install.	(103)	$12	(104)	$12		24
O&MN Install. "O" Level		-0-				-0-
APN-6 Spares		$274				274
GRAND TOTAL						$2,598

Installation Data: Installation will be accomplished at "O" or "I" level except for those aircraft projected through Standard Depot Level Maintenance (SDLM) where the kit will be installed concurrent with rework.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Installation of Liquid Oxygen (LOX) Converter Overpressure Safety Disc (OSIP 111-85)

Models of Aircraft Affected: All LOX equipped aircraft.

Description/Justification:

The ten liter LOX converter has a history of explosions. If the pressure relief valve of a liquid oxygen converter malfunctions, internal pressure due to expansion of liquid oxygen will increase to a point where the sphere assembly can no longer contain the pressure. When this point is reached and the existing pressure relief valve fails to open, the sphere assembly ruptures and internal pressure is released instantaneously in a catastrophic bomb-like explosion. The best approach to prevent the problem is to incorporate an overpressure safety disc in the ten liter LOX converter. The overpressure safety disc would be incorporated in the plumbing of the converter at a location to insure rapid dumping of head pressure in the event that the pressure relief valve fails to open. The functional performance of the LOX converter will not be affected by addition of the overpressure disc. Failure to implement this change will result in continued LOX converter explosions and it is expected that in at least one such future incident the result will be injury or death.

Development Status: A test and evaluation of the ten liter LOX converter overpressure safety disc was completed in 1982. All testing showed that it was not susceptible to activation due to temperature, vibration or normal pressure. No additional development is required.

OSIP 111-85

Project Financial Plan:

	FY 1985		TOTAL	
	Qty	Cost	Qty	Cost
APN-5		$1,080		$1,080
O&MN Install. "I" Level		-0-		-0-
O&MN Training		$20		20
APN-6 Spares		$18		18
GRAND TOTAL				$1,118

Installation Data: Installation will be accomplished at intermediate level during the routine calendar inspection.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: 30MM Gun Pod (OSIP 124-85)

Models of Aircraft Affected: Marine A-4 and F-4 Aircraft

Description/Justification:

This modification will procure 30MM Gun Pods to replace the existing 20MM Pods to increase attack capability against a variety of targets.

Development Status: The U.S. Air Force has developed this system for its F-4, F-15 and F-16 aircraft.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	196	$11,026	196	$11,000	392	$22,026
O&MN Install.		-0-				-0-
APN-6 Spares		-0-				-0-
GRAND TOTAL						$22,026

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Navstar Global Positioning System (GPS) (OSIP 35-86)

Models of Aircraft Affected: RH-53/MH-53, E-2C, P-3, F/A-18, AV-8, EP-3, S-3, EA-6, KA-6D, F-14, SH-60, C-2, CH-53E, OV-10D, AH-1J, ECX, CH-46/CH-53, UH-1, AH-1T, SH-3, KC-130

Description/Justification:

The Navstar GPS system is designed to provide highly accurate passive position (16 meters) velocity (0.1 meters/sec) and time to users worldwide in all weather conditions. The GPS system will interface with communication, navigation and weapon systems equipments, i.e., JTIDS, INS, on-board computers, etc., in selected applications.

Procurement of the "B" Kit (User Set) is to be funded by OP-943 (NAVELEX, as Principle Development Activity) and includes receiver processor unit (RPU), flexible modular interface (FMI), antenna system and a control display unit (CDU).

Modification Kit (A Kit), GSE, operation and support, installation and associated manpower are NAVAIR/PMA responsibilities and as such are not addressed in this document.

Development Status: The Navstar GPS program is currently in Phase II (Full Scale Engineering Development) with Milestone III (approval for limited or full production) decision scheduled for May 1984. PE 64777N funds RDT&E,N portion. PE 35164N is the acquisition and support PE in which the following should be included.

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		FY 1989		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5 (Kit B Only)	62	$10,400	265	$34,200	633	$74,100	915	$118,100	1,875	$236,800
O&MN Install.		-0-								-0-
APN-6 Spares		$2,018		$6,566		$14,414				22,998
GRAND TOTAL										$259,798

Installation Data: O&MN funding requirements will be identified when aircraft scheduled are firmed up.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Power Plant Changes

Models of Aircraft Affected: Various

Description/Justification:

The Component Improvement Program (RDT&E,N) engineers power plant changes which must then be incorporated into the appropriate engine population. Implementation of these changes requires procurement of kits and technical information. The request for funds to implement the changes is based on the phased incorporation schedule and change cost per engine.

Development Status: All engineering effort will be accomplished prior to procurement of kits.

Project Financial Plan:

	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985
Total APN-5	$11,551	$9,820	$11,263	$11,407	$13,054
O&MN Install.	$4,668	$4,953	$5,206	$5,472	$5,735
Manhours	133,600	133,600	133,600	133,600	133,600
APN-6 Spares	$1,224	$1,162	$732	$1,369	$886

	FY 1986	FY 1987	FY 1988	FY 1989
Total APN-5	$14,108	$14,633	$16,377	$17,156
O&MN Install.	$5,735	$5,735	$5,735	$5,735
Manhours	133,600	133,600	133,600	133,600
APN-6 Spares	$1,642	$1,686	$1,906	$1,977

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Emergent Safety Requirements

Models of Aircraft Affected: Various

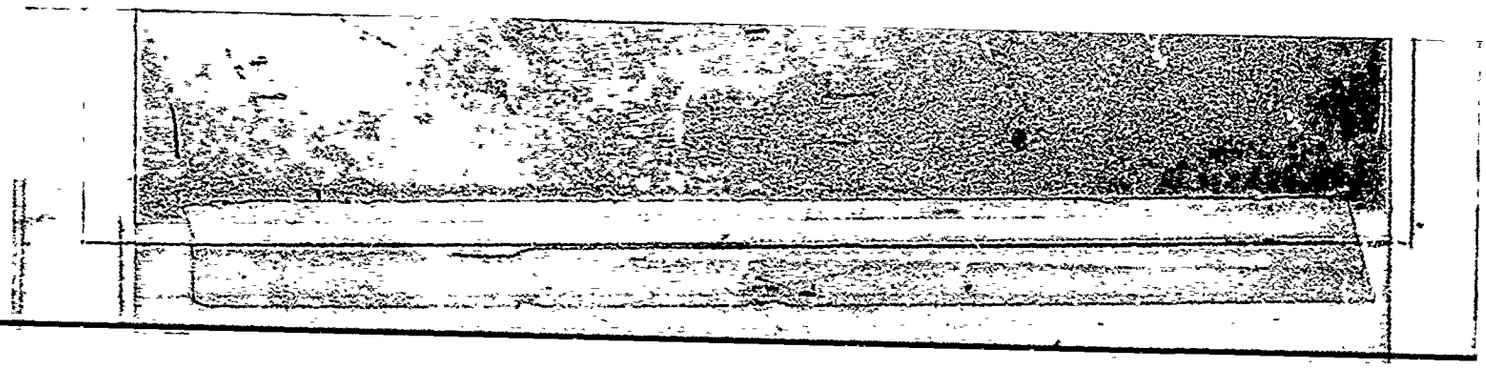
Description/Justification:

This item covers the procurement of kits to correct flight safety deficiencies. These deficiencies are unpredictable since they are revealed during actual operation of aircraft in the Fleet under diverse tactical and environmental conditions. These changes must have OPNAV authorization and will be reviewed by the NAVAIR Change Control Board.

Development Status: Not applicable.

Project Financial Plan:

	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985
APN-5	$4,886	$4,303	$5,702	$6,007	$6,955
O&MNR Install.	$450	$477	$501	$527	$515
O&MN Install.	$3,076	$3,264	$3,430	$3,605	$3,778
Manhours	102,888	100,000	100,000	100,000	100,000
APN-6 Spares	$135	$28	$1,490	$300	$337

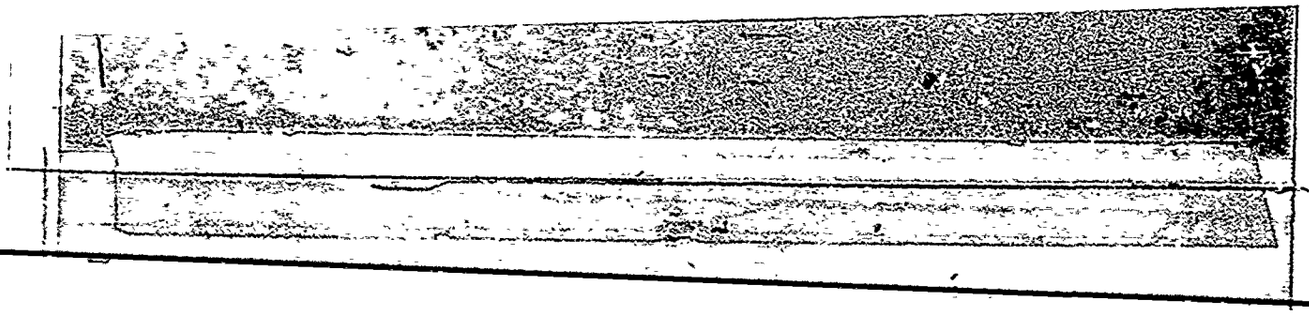


Emergent Safety Requirements

Project Financial Plan (Cont'd):

	FY 1986	FY 1987	FY 1988	FY 1989
APN-5	$8,700	$10,100	$10,877	$11,512
O&MNR Install.	$515	$515	$515	$515
O&MN Install.	$3,778	$3,778	$3,778	$3,778
Manhours	100,000	100,000	100,000	100,000
APN-6 Spares	$422	$485	$528	$553

Installation Data: These kits will be installed during SDLM, at organizational or intermediate levels, by contractors, or by field mod teams.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALR-45F (OSIP 109-79)

Models of Aircraft Affected: A-4M, OA-4M, F-4S, RF-4B, A-7E, KA-6D, AV-8C

Description/Justification:

The CP-1293 computer (ALR-67) and IP-1276 azimuth display have been designed such that they are interchangeable with the electrical pulse analyzer and azimuth display of the AN/ALR-45 receiving set. This provides a reprogrammable analyzer, an alpha-numeric display of threat bearing and identification (I.D.), and interface capability with AN/ALQ-126B and AN/ALE-39.

Weight and space are the same as the ALR-45 pulse analyzer (22.5 pounds, 536 cubic inches) and the ALR-45F is a "drop-in" one for one replacement for the ALR-45.

Development Status: TECHEVAL and OPEVAL are completed and provisional approval for service use (PASU) was granted in May 1982. Sixty-five units were procured in FY 1982 for a cumulative total of 108. Approval for limited production (ALP) was granted in October 1983 for an additional 55 units. Based on satisfactory performance as part of FOT&E, approval for full production (AFP) will be requested. RDT&E(N) Program Element is 64225N/W0618-TW.

Project Financial Plan:

	FY 1981		FY 1982		FY 1983		FY 1984		FY 1985	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	43	$19,011	65	$13,147	55	$12,645	50	$14,249	96	$23,593
O&MN Install. "O" Level										-0-
O&MN Support										$650
APN-6 Spares				$2,213		$1,113				-0-

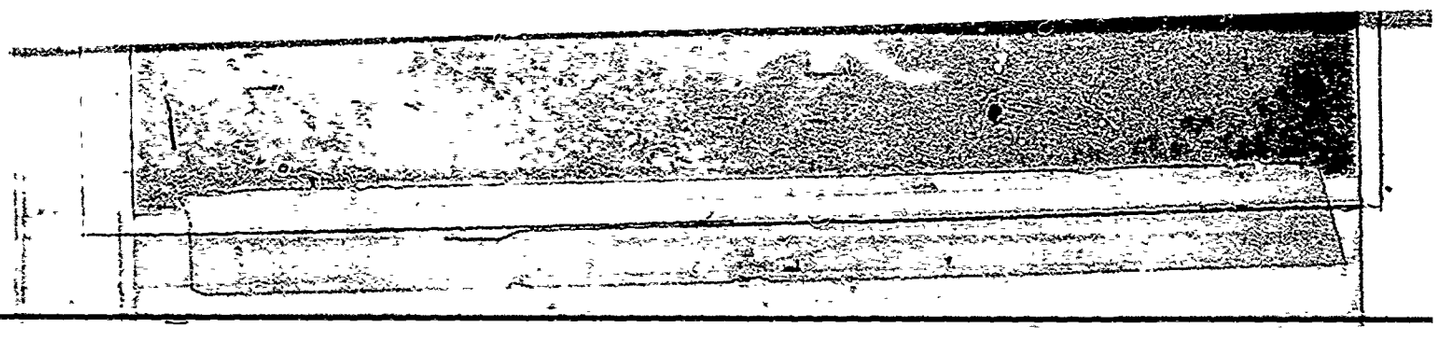
OSIP 109-79

Project Financial Plan (Cont'd):

	FY 1986		TOTAL	
	Qty	Cost	Qty	Cost
APN-5	120	$28,029	429*	$110,674
O&MN Install. "O" Level				-0-
O&MN Support		$650		1,300
APN-6 Spares				3,323
GRAND TOTAL				$115,297

*Quantity represents GFE.

Installation Data: The ALR-67 GFE is a direct replacement for ALR-45 analyzer and display to be installed at the organizational level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-126B (OSIP 110-79)

Models of Aircraft Affected: A-4M, A-6E, A-7E, F-4S, RF-4B, F/A-18, F-14, EA-6B, AV-8B/C

Description/Justification:

The AN/ALQ-126B is a self-protection jamming system designed to significantly improve reliability/maintainability and operational performance from its predecessor, the ALQ-126A. The ALQ-126B system consists of equipment design changes to improve maintainability and reliability while significantly improving effectiveness. These design changes will have a negligible effect on equipment size and weight and the ALQ-126B remains a "drop-in" replacement for the ALQ-126A. Production will reflect a one for one replacement of the AN/ALQ-126A.

Development Status: TECHEVAL and OPEVAL are completed and Approval for Limited Production (ALP/PASU) was granted in August 1982. One hundred thirty-six units were procured in FY 1982. FOT&E in the F-14, F-18, AV-8 and A-4 aircraft is to be conducted in FY 1983/1984. Sponsor program review of June 1983 extended limited production pending the flight test of production hardware in the fourth quarter FY 1984.

Project Financial Plan:

	FY 1979		FY 1980		FY 1981		FY 1982		FY 1983	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	5*	$13,240		$8,790		$8,080	136*	$82,380	236*	$121,286
APN-6 Spares				$137		$72		$6,268		$17,764

* GFE only.

OSIP 110-79

Project Financial Plan (Cont'd):

	FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	251*	$129,923	296*	$151,132	296*	$142,584	1,220*	$657,415
O&MN Support				$200		±300		500
APN-6 Spares		$22,840		-0-				47,081
GRAND TOTAL								$704,996

*GFE only.

Installation Data: The ALQ-126B is a direct replacement for the ALQ-126A.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APR-43 (OSIP 113-85)

Models of Aircraft Affected: A-4M, RF-4, A-7E

Description/Justification:

This OSIP buys all common equipment for several aircraft. Individual aircraft mods procure provisions for these equipments.

The AN/APR-43 is a radar/missile warning receiver which provides mission essential warning and direction finding for CW threat systems. The APR-43 augments and is fully integrated with the AN/ALR-45F. The system is a form factor replacement for the AN/ALR-50, and as such keeps airframe changes to a minimum.

Development Status: TECHEVAL and OPEVAL have been completed in the A-7E. Approval for limited production (ALP) for 57 units was granted in October 1983. FOT&E is ongoing and will continue through FY 1984.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	47	$11,918	37	$11,544	84	$23,462

NOTE: See OSIP's 26-79 (A-7E), 143-84 (RF-4) and 67-85 (A-4M) for airframe provisions, O&MN Installs, APN-6 Spares and previous year procurements.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALR-67 Radar Receiving Set, Countermeasures (OSIP 114-85)

Models of Aircraft Affected: F/A-18, A-6E, F-14

Description/Justification:

This OSIP provides for the procurement of common equipment for the F/A-18, A-6E and F-14 aircraft. Provisions for the installation of this common equipment are contained in the respective aircraft OSIPs. See F/A-18 (OSIP 66-84), A-6E (OSIP 51-84), and F-14 (OSIP -89).

The AN/ALR-67 Radar Receiving Set, Countermeasures Warning and Control System is the radar and missile warning system in advanced tactical aircraft (F/A-18, A-6E and F-14). The AN/ALR-67 provides detection and direction finding (DF) over the entire RF spectrum of target tracking and missile control systems. It provides full hemispherical coverage in all platform installations. The AN/ALR-67 is a firmware reprogrammable system incorporating a high intensity alpha-numeric azumith display. The system is fully integrated, via the MIL-STD-1553 data buss, with other on-board EW equipments. The AN/ALR-67 provides significant improvements/enhancements in DF coverage, threat coverage and reliability/maintainability over equipments currently in use.

Development Status: Engineering development models were fabricated and have undergone extensive and various test and evaluation events. The reliability development test, environmental qualification test and TECHEVAL are complete. Operational effectiveness testing in the A-6E is complete. The AN/ALR-67 has been integrated with other EW systems and laboratory and ground testing is underway in the F/A-18. Approval for limited production (ALP) is planned for the second quarter of FY 1984.

OSIP 114-85

Project Financial Plan:

	FY 1985		FY 1986		FY 1987		FY 1988		FY 1989	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	76	$41,624	110	$71,266	110	$70,032	102	$63,272	150	$108,614
APN-6 GFE Spares		$2,467		$3,046		$2,761		$2,953		

	FY 1990		FY 1991		FY 1992		FY 1993		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	153	$105,189	109	$79,337	109	$7?,908	45	$17,437	964	$628,679
APN-6 GFE Spares										11,227
GRAND TOTAL										$639,906

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/ALQ-162 Countermeasures Set (OSIP 115-85)

Models of Aircraft Affected: A-4M, RF-4B, A-7E, AV-8C

Description/Justification:

This OSIP provides for the procurement of common equipment for the A-4M, RF-4B, A-7E and AV-8C aircraft. For the AV-8C, the AN/ALQ-162 is an integral part of the AN/ALQ-164 pod. Provisions for the installation of this common equipment are contained in the respective aircraft OSIPs. See A-4M (OSIP 4-83), RF-4B (OSIP 128-84), and A-7E (OSIP 141-84).

The AN/ALQ-162 provides complementary CW jamming to the operational AN/ALQ-126B pulse jammer installed in tactical aircraft. The AN/ALQ-162 will accept threat handoff data from the AN/APR-43 Radar Warning Receiver and utilize a common transmit/receive antenna integral to the AN/APR-43 antenna assembly. The AN/ALQ-162 also provides a stand alone capability allowing for defensive electronic countermeasures in event of AN/APR-43 failure. The AN/ALQ-162 design is fully reprogrammable to handle future threat parameter changes. The AN/ALQ-162 provides a significant increase in survivability for Navy tactical aircraft against radar directed air defense weapons.

Development Status: Northrop Defense Systems Division is under contract and provided engineering development models in the second quarter of FY 1981 for test and evaluation. TEMP No. 593 supports Navy test and evaluation. The RDT and TECHEVAL are complete. OPEVAL commenced in the first quarter of FY 1984. Approval for limited production (ALP) is expected in the third quarter of FY 1984. RDT&E,N Program Element Number 64224N applies.

Project Financial Plan:

	FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	109	$36,550	126	$35,297	235	$71,847
APN-6 Spares		$2,647				2,647
GRAND TOTAL						$74,494

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APR-39A(V)1 (OSIP 36-86)

Models of Aircraft Affected: AH-1J/T, UH-1N, CH-53 A/D, RH-53D, CH-46E, MH-53E, OV-10A/D, HH-3A

Description/Justification:

The AN/APR-39A(V)1 consists of: (1) replacing the existing AN/APR-39(V)1 analog processor with a current generation digital processor, (2) replacing the existing AN/APR-39(V)1 receivers with new receivers and antennas which expand the frequency coverage into the millimeter wave region, and (3) replacing the existing cockpit control panel with a similiar unit capable of handling increased power loads. The digital processor is required to provide threat signal discrimination, alpha numberic display and synthetic speech audio in order to reduce pilot workload in the nap-of-the-earth flight environment. The receiver and antenna update is required in order to provide warning of modern threat radars which are using the millimeter wave spectrum. The digital processor will interface with and display inputs from other aircraft sensors (laser, CW and missile warning sets); however, the existing cockpit control cannot power these devices and an updated panel is required. All replacement equipments will be form/fit compatible with existing aircraft configurations and no aircraft change kit is required.

Development Status: The AN/APR-39(V)1 is approved for service use and is being used on Marine Corps helicopters. The improvement program is a joint Army/Navy project with the Army as executive service. A joint memorandum of agreement details individual service responsibilities during the engineering development phase. Engineering development contract was awarded in October 1982. Navy TECHEVAL/OPEVAL will be complete in the third quarter of FY 1985 followed by approval for service use in the first quarter of FY 1986. A draft ACAT III TEMP is being prepared under RDT&E,N Program Element No. 63506N. The improved system has been given the nomenclature AN/APR-39A(V)1.

OSIP 36-86

Project Financial Plan:

	FY 1986		FY 1987		FY 1988		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	318	$12,873	304	$10,319	233	$6,974	855*	$30,157
O&MN Install. "O" Level		-0-						-0-
O&MN Training		$300						300
APN-6 Spares		$1,820		$2,447		$1,195		5,462
GRAND TOTAL								$35,919

* GFE only.

Installation Data: No airframe change is required. GFE will be installed at the organizational maintenance level by squadron personnel.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APN-154(V) Radar Beacon R&M Improvement (OSIP 127-82)

Models of Aircraft Affected: A-6E, KA-6D, EA-6A/B, A-7E, F-14A, A-4E/F/N, F-4S, AH-1J, AH-1T, CH/UH/HH-46A/D/E, CH/RH-53A/D/E

Description/Justification:

This avionics system supports tracking of the aircraft by the Automatic Carrier Landing System (ACLS) radar and by FAA Air Traffic Control (ATC) radar during cross country flights. It is in urgent need of reliability and maintainability (R&M) improvements, which have been developed with Aircraft Equipment Reliability and Maintainability Improvement Program (AERMIP) funds and are ready for incorporation. The R&M improvements include modification of the RT-763/B/C/D/ beacon transmitter to the RT-763E configuration (IAVC-2636) in order to maintain its frequency, which is critical to the success of ACLS Mode I (fully automatic) operations. The redesigned frequency control portion of the radar beacon reduced scheduled maintenance actions on the radar beacon by a factor of 6 to 1 during a recent evaluation with two A-7E squadrons during a deployment.

Development Status: Development has been completed under the AERMIP Program, RDT&E,N Program Element Number 25633N, Project 1041.

Project Financial Plan:

	FY 1982		FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$235	377	$1,490	212	$890	411	$1,831	344	$1,623	456	$2,277
O&MN Install.*					(372)	$301	(400)	$378	(409)	$378	(400)	$378
APN-6 Spares						$160		$165		$174		$181

*Includes 228 spares.

OSIP 127-82

Project Financial Plan (Cont'd.):

	FY 1988		FY 1989		FY 1990		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	285	$1,506	215	$1,203			2,300	$11,055
O&MN Install.*	(428)	$404	(313)	$296	(215)	$203		2,338
APN-6 Spares		$192		$200				1,072
GRAND TOTAL								$14,465

*Includes 228 spares.

Installation Data: Installation will be accomplished by exchange of upgraded weapons replaceable assemblies (WRA's) at the organizational level. The WRA's will be reworked at the factory because this is the only facility currently overhauling RT-763's and capable of expanding rapidly to meet the planned modification rate.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Reliability and Maintainability Improvement to the Receiver and Transmitter of the Radar Altimeter Set, AN/APN-171 (OSIP 101-83)

Models of Aircraft Affected: E-2C, SH-2F, SH-3D/G/H, UH-1N, UH-46D, HH-46A, CH-46D, CH-53A/D, RH-53D, CH-46E, CH-53E, AH-1J/T, OV-10A/D, UH-3A, VH-3A, VH-3D, HH-1K, UH-1E, HH-3A, LC-130R

Description/Justification:

The AN/APN-171 radar altimeter set is a safety of flight essential airborne low-altitude terrain tracking and altitude sensing radar system which provides a ...rate and continuous indication of aircraft altitude. Altitude range information is derived by utilizing a lock track loop allowing tracking of terrain ahead of or adjacent to the aircraft and provides warning of rapid changes of absolute altitude. Current RT configurations experience high failure and removal rates resulting in extremely high maintenance manhour (22,072 MMH/year) requirements and unsatisfactorily low mean flight hour between failure (MFHBF) (152 hours). This R&M improvement will replace the limited life tube style cavity oscillator in the receiver assembly and the existing transmitter module with a solid-state circuity. The MFHBF for a solid-state RT unit is predicted to increase to a high of approximately 600 hours. In addition, meantime to repair (MTTR) of the RT unit will be reduced from the current 3-4 hours to less than 1 hour. This change will virtually eliminate the effect of degraded operation that is inherent in t...e type designs thus eliminating the need for periodic replacement. Solid-state devices will only be replaced upon failure; there is no gradual effect with solid-state devices.

Development Status: Development has been completed under the Aircraft Equipment Reliability and Maintainability Improvement Program (AERMIP) RDT&E,N Program Element Number 25633N, Project 1041.

OSIP 101-83

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		FY 1987	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	10	$354	332	$2,955	360	$2,142	350	$2,196	322	$2,140
O&MN Install.			(8)	$4	(326)	$188	(360)	$192	(360)	$192
APN-6 Spares				$686		$854		$890		$876

	FY 1988		TOTAL	
	Qty	Cost	Qty	Cost
APN-5			1,374	$ 9,787
O&MN Install.	(320)	$156		732
APN-6 Spares				3,306
GRAND TOTAL				$13,825

Installation Data: Installation will be accomplished at the depot level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APN-182(V) Navigation Set, Reliability Improvement (OSIP 114-83)

Models of Aircraft Affected: HH-3A, VH-3A, SH-3G, UH-3A, SH-3D, SH-3H, SH-2F, HH-46A, VH-3D

Description/Justification:

The AN/APN-182 Radar Navigation Set provides accurate and continuous heading, drift and vertical velocities, providing navigational information over an unlimited geographical area. The AN/APN-182 exhibits a high (25,500 maintenance man hour (MMH)) annual maintenance requirement and low mean time between failure (MTBF) of 69 hours. The reliability and maintainability (R&M) improvement to the AN/APN-182 consists of replacing the current tube type high voltage power supply and Klystron transmitter with a solid-state transmitter (SSX) and a low voltage power supply (LVPS). Utilizing state-of-the art component and design, the new solid state system's reliability is projected to improve to 155 hours MTBF. The current 6 MMH/flight hour (FHR) rate will be reduced to 2 MMH/FHR (significantly enhancing equipment maintainability availability and reducing overall maintenance costs). This change will involve component replacement to the AN/APN-182 system and will not require any airframe change. No new PGSE hardware will be required; interface with existing PGSE is incorporated in the new solid state power supply design.

Development Status: Development was completed under AERMIP Project Element 25633N, Project 1041. Approval for full production (AFP) is not required.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		FY 1986		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	39	$918	127	$1,326	127	$1,280	47	$502	340	$4,026
O&MN Install. "I" Level						-0-				-0-
O&MN Training				$295						295
APN-6 Spares		$518		$472		$450		$388		1,828
GRAND TOTAL										$6,149

Installation Data: Installation is less than one hour and will be accomplished at Intermediate level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APX-76 Solid State Transmitter, Reliability and Maintainability (OSIP 140-83)

Models of Aircraft Affected: F-4B/S, F-14, S-3A, P-3C, EP-3E, KC-130F/R, E-2B/C

Description/Justification:

A production change incorporated a solid state transmitter (SST) into the AN/APX-76 in 1979. This equipment has been designated the AN/APX-76B. Experience with the equipment shows an increase in mean flight hours between failure (MFHBF) from 140 to 560 hours for the RT-868 is predicted. Fleet MFHBF is not established although the first two F-14 squadrons outfitted with SST have reported no failures after 12 months and one deployment. 400 installs and 40 spares retrofit kits were procured in 1979 using reprogrammed funds. This program provides for retrofit of the balance. Type Commanders have requested full retrofit due to reliability/readiness experience (COMNAVAIRPAC letter Serial 7271B/1891 of 31 March 1982 with CINCPACFLT endorsement Ser 43/C282 of 10 May 1982).

Development Status: The AN/APX-76B is approved for full production.

Project Financial Plan:

	FY 1983		FY 1984		FY 1985		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5		$976		$1,313		$2,814		$5,103
C&MN Install. "I" Level						-0-		-0-
APN-6 Spares		$195		$209		$188		592
GRAND TOTAL								$5,695

Installation Data: Intermediate level installation.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: Digital Air Data Converter (OSIP 34-84)

Models of Aircraft Affected: E-2C, EA-6A, E/ 6B, KA-6D, A6E, C-2A, NEA-6B, F-4S, RF-4B, TC-4C

Description/Justification:

Current air data computers are impacting readiness of Navy aircraft due to low reliability, obsolescence and nonstandardization. To resolve this problem a standard digital air data converter (DADC) is being developed (NDCP W0572) to replace the following air data computers: CP-1106, CP-1051, CP-1005, CP-828, CP-953, and CP-1085. The DADC is designed to be form, fit and function interchangeable with no airframe change required. In addition to being interoperable between aircraft, the mean flight hour between failure (MFHBF) will be increased from the current 106 hours to 400 hours. The existing ground support equipment in recent testing, has been found inadequate and therefore new support equipment is necessary.

Development Status: Development is being funded under the Avionics Components and Subsystems Program (AVCS) Program Element Number 64203N, W0572. Approval for full production (AFP) is planned for March 1984.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		TOTAL	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	24	$1,812	176	$8,537	384	$15,330	202	$7,683	786	$33,362
O&MN Install. "O" Level				-0-						-0-
APN-6 Spares		$230		$938		$2,894				4,062
GRAND TOTAL										$37,424

Installation Data: Installation will be accomplished at the organizational level.

MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APX-76 for VF Aircraft (OSIP 129-84)

Models of Aircraft Affected: F-4, F-14

Description/Justification:

The AN/APX-76 interrogator was procured for the F-4 on a one-for-two basis and was not procured with early F-14 production aircraft. All F-14 and F-4 have installation provisions for the APX-76. This outfitting level has resulted in considerable readiness problems as cross-decking and cannibalization are required, no equipment is available for pre-deployment installation, no operator or maintenance training is possible, and the integrity of aircraft provisions is not maintained. This program procures additional equipment to outfit VF aircraft one-for-one.

Development Status: The AN/APX-76 is approved for full production.

Project Financial Plan:

	FY 1984		FY 1985		FY 1986		FY 1987		FY 1988	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
APN-5	51	$2,183	50	$2,269	50	$2,403	50	$2,543	50	$2,692
O&MN Install. "O" Level				-0-						
APN-6 Spares				-0-						

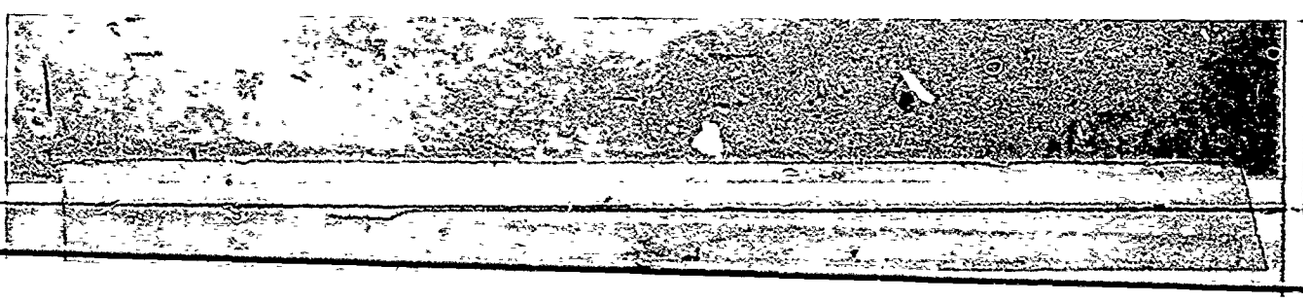
OSIP 129-84

Project Financial Plan (Cont'd):

	FY 1989 Qty	FY 1989 Cost	TOTAL Qty	TOTAL Cost
APN-5	36	[illegible],007	287*	$15,097
O&MN Install. "O" Level				-0-
APN-6 Spares				-0-
GRAND TOTAL				$15,097

*Quantity represents GFE.

Installation Data: The equipment will be installed at the organizational level.



MODIFICATION OF AIRCRAFT
FISCAL YEAR 1985

Appropriation: APN - Activity 5

Modification Title and No.: AN/APX-76 and RT-988/A IFF Interrogator Anti-Jam Modification (OSIP 126-85)

Models of Aircraft Affected: F-14A, F-4N, F-4S, S-3A, P-3C, KC-130F, KC-130R, EP-3E, SH-60B, E-2C

Description/Justification:

The U.S. Navy and the U.S. Air Force are developing modifications to the AN/APX-76 to improve resistance to the jamming threat. Vulnerability studies, equipment testing and testing of broadband equipment have shown that improvement is required and considerable improvement can be achieved by modifications. The change will require the replacement of three printed circuit cards in the RT-988( )/APX-76 (or RT-988( )) and one card in the SN-416( )/APX-76.

Development Status: NAVAIR and the Air Force (ASD) are procuring engineering development models of this change. Design, delivery and testing was completed in FY 1983 under RDT&E,N Program Element Number 64211N.

Project Financial Plan:

	FY 1985		TOTAL	
	Qty	Cost	Qty	Cost
APN-5	810	$3,059	810	$3,059
O&MN Install. "I" Level		-0-		-0-
O&MN Training		$50		50
APN-6 Spares		$875		875
GRAND TOTAL				$3,984

Installation Data: Installation will be accomplished at the intermediate level.

FISCAL YEAR 1985
MODIFICATION OF AIRCRAFT
Programs of $900K or Less in Budget Year

Congressional Submission

OSIP No.	Description	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
A-4 Mod 130-82	P-1 Line Item No. 37 CPU-66/A-22 Encoding Computer	$ .420	$ .484	$ .299				
TOTAL A-4 Mod		$ .420	$ .484	$ .299				
A-6 Mod 6-82	P-1 Line Item No. 38 Stabilizer Shift Mechanism	$ .396	$ .644	$ .547				
59-84	AFCS R&M		1.727	.492				
TOTAL A-6 Mod		$ .396	$ 2.371	$ 1.039				
A-7 Mod 10-84	P-1 Line Item No. 40 Hydraulic Extension Units		$ 1.000	$ .735	$ .654			
63-85	Emergency Hydraulic Accum.			.864	1.097			
TOTAL A-7 Mod			$ 1.000	$ 1.599	$ 1.751			
AV-8 Mod 14-84	P-1 Line Item No. 41 S,R&M T/AV-8		$ .544	$ .852	$ .889	$ .500		
TOTAL AV-8 Mod			$ .544	$ .852	$ .889	$ .500		
F-4 Mod 18-81	P-1 Line Item No. 42 Follow On Structural Fatigue	$ 1.278	$ .347	$ .371				
90-85	Missile Firing System			.390				
121-85	Extended Range Visual Identification				.574			
TOTAL F-4 Mod		$ 1.278	$ .347	$ 1.335				

Programs of $900K or Less in Budget Year

Congressional Submission

OSIP No.	Description	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
RF-4 Mod	P-1 Line Item No. 43							
91-85	Formation Lights			$ .382				
TOTAL RF-4 Mod				$ .382				
F-14 Mod	P-1 Line Item No. 44							
39-80	Fire Warning System	$	$ .490	$ .530	$ .208	$	$	
28-81	Hydraulic System Cavitation Damper		.311	1.579	.818	.510		
112-81	Glove Vane Switching Assembly	.014	.016	.024				
64-82	ECS Compressor Duct Mod	.170	.190	.112				
80-82	Wing Unsweep	.014	.019	.020				
31-83	ECS Turbine Compressor Assembly	.320	.303	.318	.350	.075		
120-83	Gun Gas Purge Door	.136		.794	.866	.890	.434	
43-84	Rain Removal Valve		.116	.029	.030	.031	.015	
135-84	Activate Spoiler to 62 Degree		.209	.021	.063	.052	.042	
136-84	Wing Pivot Bearing Redesign		.450	.053	.056	.089		
48-85	TARPS Attrition			.106	5.240	55.470	4.812	
122-85	Forward Engine Mount Bolts			.094	.102	.098		
123-85	Gun Forward Mount Redesign			.124	.133	.124		
TOTAL F-14 Mod		$ .965	$ 3.374	$ 3.043	$ 7.558	$ 56.829	$ 5.303	
F-8 Mod	P-1 Line Item No. 45							
131-84	RF-8G Configuration Update		$ .200	$ .175	$ .500	$ .200		
TOTAL F-8 Mod			$ .200	$ .175	$ .500	$ .200		
F-5 Mod	P-1 Line Item No. 46							
42-84	Standard Configuration		$ .218	$ .226	$ .217			
TOTAL F-5 Mod			$ .218	$ .225	$ .217			

Programs of $900K or Less in Budget Year

Congressional Submission

OSIP No.	Description	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
OV-10 Mod	P-1 Line Item No. 47							
103-81	APR-39 Radar Warning Receiver		$ 2.033	$ .830	$ .422	$	$	
29-84	Strobe Lights		.173	.651				
93-85	Position Location Rec. System			.601	2.066	1.555		
94-85	Engine Anti-Ice			.694	.500	.500	.502	
TOTAL OV-10 Mod			$ 2.206	$ 2.776	$ 2.988	$ 2.055	$ .502	
H-46 Mod	P-1 Line Item No. 49							
44-85	Emergency Egress Lighting (HEEL)			$ .734	$ 1.323	$ 1.335	$ .971	
TOTAL H-46 Mod				$ .734	$ 1.323	$ 1.335	$ .971	
H-53 Mod	P-1 Line Item No. 50							
46-85	Selectable Strobe Lights			$ .779	$ .808	$ .428	$ .170	
TOTAL H-53 Mod				$ .779	$ .808	$ .428	$ .170	
H-2 Mod	P-1 Line Item No. 52							
73-84	Throttle Quadrant		$ .896	$ .863	$	$		
59-85	AN/ARA-50 Direction Finder			.755	.780	.535		
120-85	AN/ARN-118 TACAN			.862	.799	.997		
TOTAL H-2 Mod			$ .896	$ 2.480	$ 1.579	$ 1.532		
P-3 Mod	P-1 Line Item No. 55							
49-83	Ditching Improvement	$ .171	$ .490	$ .520	$ .550	$ .475	$	
83-84	BRU-14/A Bomb Racks		1.331	.192	.610	.645	.683	
TOTAL P-3 Mod		$ .171	$ 1.821	$ .712	$ 1.160	$ 1.120	$ .683	

Programs of $900K or Less in Budget Year

Congressional Submission

OSIP No.	Description	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
S-3 Mod	P-1 Line Item No. 56							
107-80	Wing Fold System Mod	$ .233	$ .240	$ .278	$ .466	$	$	
87-84	Pitch Trim Actuator		.400	.149	.138	.125	.053	
80-85	ECS Ducting			.127	.176	.192		
TOTAL S-3 Mod		$ .233	$ .640	$ .554	$ .780	$ .317	$ .053	
US-3 Mod	P-1 Line Item No. 57							
83-85	Control Servo Imp. Program			$ .348	$ .053	$ .014		
84-85	Oxygen System			.620	.132			
85-85	Turbine Air Bearing			.236	.095			
TOTAL US-3 Mod				$ 1.204	$ .280	$ .014		
E-2 Mod	P-1 Line Item No. 58							
105-79	10-KVA Emergency Generator	$	$	$ .290	$ .368	$ .195	$	$
77-80	Refractometers		.721	.835	.884	.935	.990	.262
59-81	Safety Mods	.206	.438	.465	.492	.131		
36-82	Pylon Fixed Fairing	.231	.336	.356	.377	.200		
82-82	Attitude Gyro Change	.136	.230	.266	.282	.298	.316	.056
115-83	PARKHILL (KY-75)	.660		.424	.225			
100-84	Passive Detection System		.176	.108	.081	.071		
58-85	Aircrew Emergency Egress			.600	3.301	3.494	3.699	3.915
69-85	Airframe Readiness Improvement			.434	.483	.537	.321	.396
TOTAL E-2 Mod		$ 1.233	$ 1.901	$ 3.778	$ 6.493	$ 5.861	$ 5.326	$ 4.629

Programs of $900K or Less in Budget Year

Congressional Submission

OSIP No.	Description	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
Trainer Aircraft P-1 Line Item 59								
78-81	CT-39 Service Bulletins			$ .351	$ .200	$ .200	$ .200	$
65-83	T-2 Anti-Collision Lights			.368				
68-83	T-34 Landing Gear Actuation Sys.			.560	.356			
28-84	T-44 FAA Certification			.300	.500	.700	.900	1.100
104-84	T-2 Laser Air-to-Air Gun. Sim.			.007	.006			
108-84	T-38 Standard Configuration			.200	.200	.200	.300	.318
3-85	CT-39 Angle of Attack System			.107	.081	.086		
10-85	T-34 FAA Configuration Update			.200	.496	.298		
TOTAL Trainer Aircraft				$ 2.093	$ 1.839	$ 1.484	$ 1.400	$ 1.418
TH-57 Mod	P-1 Line Item No. 64							
74-83	Service Bulletins		$ .100	$ .381	$ .440	$ .404	$ .500	
109-84	Anti-Collision Lights		.515	.185				
76-85	Configuration Update			.179	.606			
TOTAL TH-57 Mod			$ .615	$ .745	$ 1.045	$ .404	$ .500	
Cargo and Transport Aircraft P-1 Line Item 66								
77-83	UC-12 FAA Certification			$ .600	$ .800	$ .900	$	$
98-83	C-131 Modernization (S,R&M)			.457	.301	.276	.175	.133
73-85	C-1 Anti-Collision Strobe Lights			.345				
74-85	C-9 HF Com Update			.280	.775	.820	.868	
TOTAL Cargo and Transport Aircraft				$ 1.682	$ 1.876	$ 1.996	$ 1.043	$ .133

Programs of $900K or Less in Budget Year

Congressional Submission

OSIP No.	Description	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
EC-130 Mod	P-1 Line Item No. 71							
85-83	Com Central ERCS Monitor	$ .845	$ .126	$ .129	$ .110			
86-83	LTN-211 OMEGA/Nav System Update	.640	.094	.080				
87-83	AN/APX-100 IFF	.290	.097	.051				
88-83	AN/APN-59E Weather Radar	.621	.217	.173				
110-83	Short Trailing Wire Antenna	.241	1.496	.509	.323			
TOTAL EC-130 Mod		$ 2.637	$ 2.030	$ .942	$ .433			
C/KC-130 Mod	P-1 Line Item No. 72							
79-83	Fuel Quantity Ind. System	$ .005	$ .667	$ .552	$			
120-84	Strobe Lights		.770	.596	.391			
121-84	Emergency Exit Lights		.139	.103	.066			
123-84	Air Refueling Tank Qty. Ind. Sys.		.134	.113	.113			
TOTAL C/KC-130 Mod		$ .005	$ 1.710	$ 1.364	$ .570			
FEWSG	P-1 Line Item No. 73							
95-83	ERA-3B ESM Receiver System	$ .712	$ 1.695	$ .576	$	$	$	
7-84	C^3 Simulators		.240	.734	.529	.462	.458	
138-84	ERA-3B INS (LTN-72)		.711	.806	.385			
TOTAL FEWSG Mod		$ .712	$ 2.646	$ 2.116	$ .914	$ .462	$ .458	

Programs of $900K or Less in Budget Year

Congressional Submission

OSIP No.	Description	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
Common Avionics Changes - P-1 Line Item No. 79								
89-82	Antenna for APN-194	$ .174	$ .239	$ .381	$ .403	$ .063	$	
104-83	ARC-51 R&M Improvement	.320	.282	.271	.187			
113-83	TSEC/KY-58	.360	.807	.583				
144-84	APN-153 Doppler		.837	.463	.411			
116-85	AN/APX-64 Transponder			.740	.623	.660	.306	
117-85	AN/APX-72 Transponder			.286	.539	.571	.181	
118-85	KY-532/533B/ASQ IFF			.531				
TOTAL Common Avionics Changes		$ .854	$ 2.165	$ 3.255	$ 2.163	$ 1.294	$ .487	