

**REIGN SUPREME  
RETURN IN GLORY**

**INTEGRATED  
MAINTENANCE PLAN**

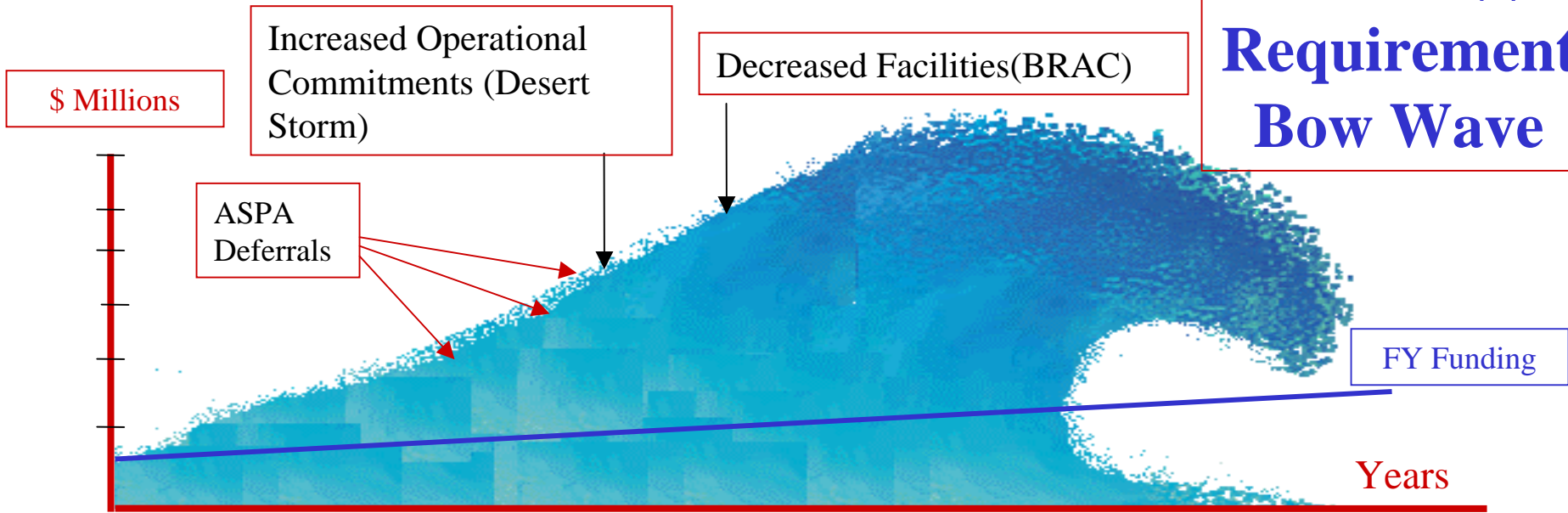
**CAPT GORDON COWARD AIR 6.1A**

**CAPT BOB BLAKLEY AIR 3.2A**

**NAV  AIR**

# The Push Behind Going to Fixed PED

**SDLM \$\$ Requirement Bow Wave**



**Pre IMC/P: SDLM / PED Adjusted by ASPA to fit Op Tempo & Budget Constraints**

- Unpredictable Depot level maintenance budget
- A/C material condition declining
- Multitude of ISR/PE repairs

**Post IMC/P: Fixed PED w/Integrated Maintenance**

- Improved Material Condition
- Based on Reliability Centered Maintenance Analysis
- Integrated Maintenance Levels (where appropriate)
- Budget Predictability

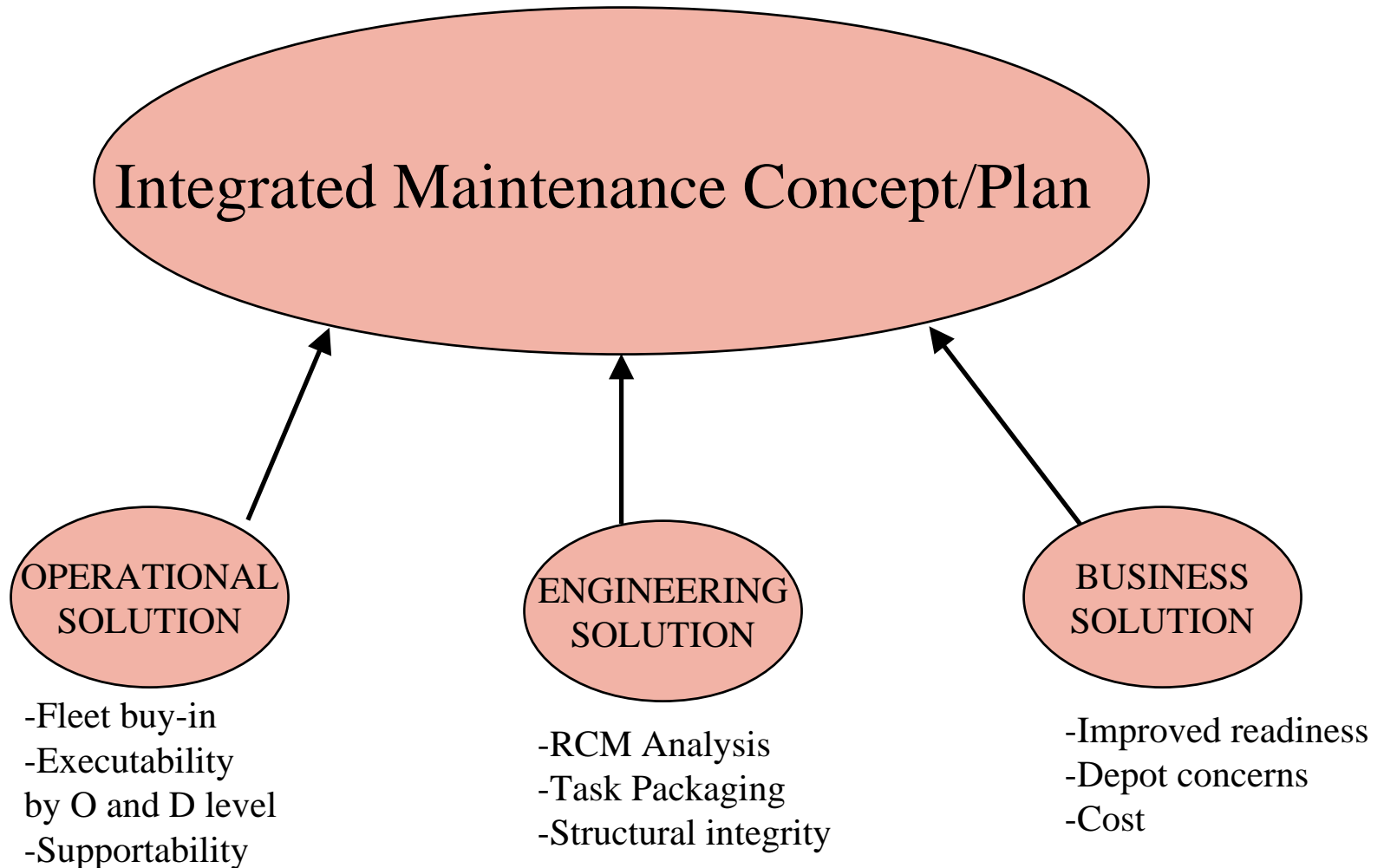
# *CNO DIRECTION*

**ESTABLISH A PLAN TO  
TRANSITION TO FIXED  
OPERATIONAL SERVICE  
PERIODS THROUGH THE  
IMPLEMENTATION OF  
RCM-BASED, SUSTAINED  
MAINTENANCE PLAN.**



# TOTAL SOLUTION

ALL PARTS MUST RECEIVE EQUAL CONSIDERATION



# Integrated Maintenance Concept/Plan

## IMPLEMENTATION

- S-3B
- F/A-18 A-D
- AH-1W
- E-2C
- H-60B, F, H

## PROTOTYPE

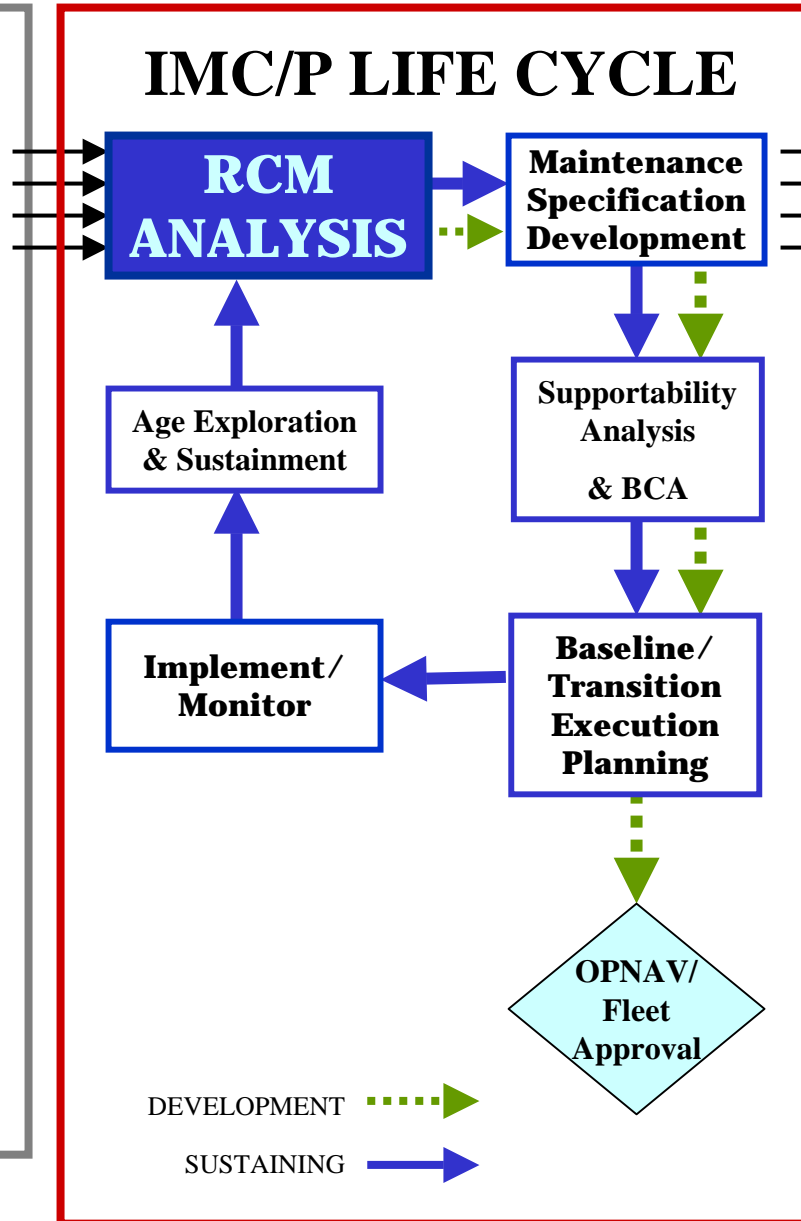
- UH-1N
- H-53E
- H-46E
- C-2A
- C-130 F/R, T
- EA-6B
- F-14 A-D

## DEVELOPMENT

- AV-8B

## FUTURE EMPHASIS

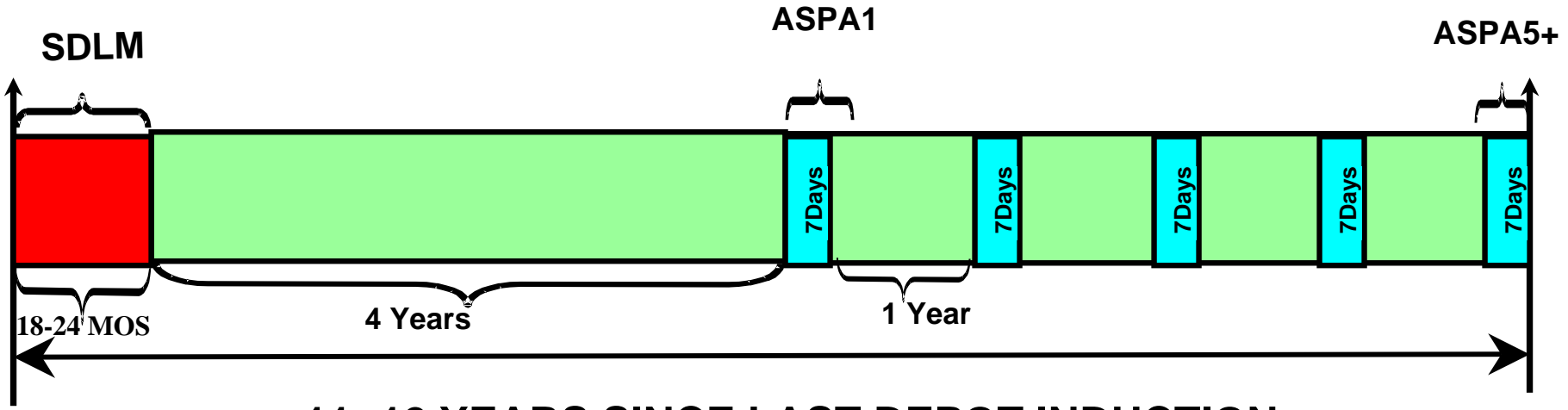
- ENGINES
- Commercially Supported Platforms



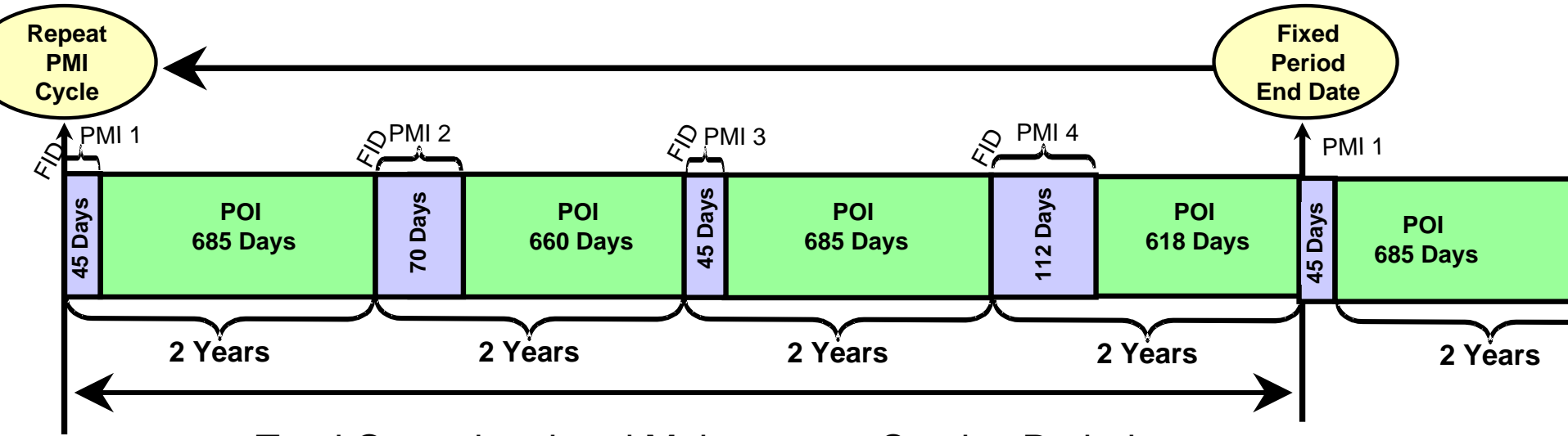
## FLEET BENEFITS

- Improved Aircraft material condition
- Reduced Depot Out of Service Time, increased Aircraft Availability
- Scheduled maintenance tasks are performed at the right interval, by the appropriate skill level unconstrained by traditional locations.
- Reduced O-level down time and maintenance req'ts
- Reduced In-service Repairs.
- Integration between Sailors and Depot Artisans.

# H-60 IMC PROGRAM BRIEF

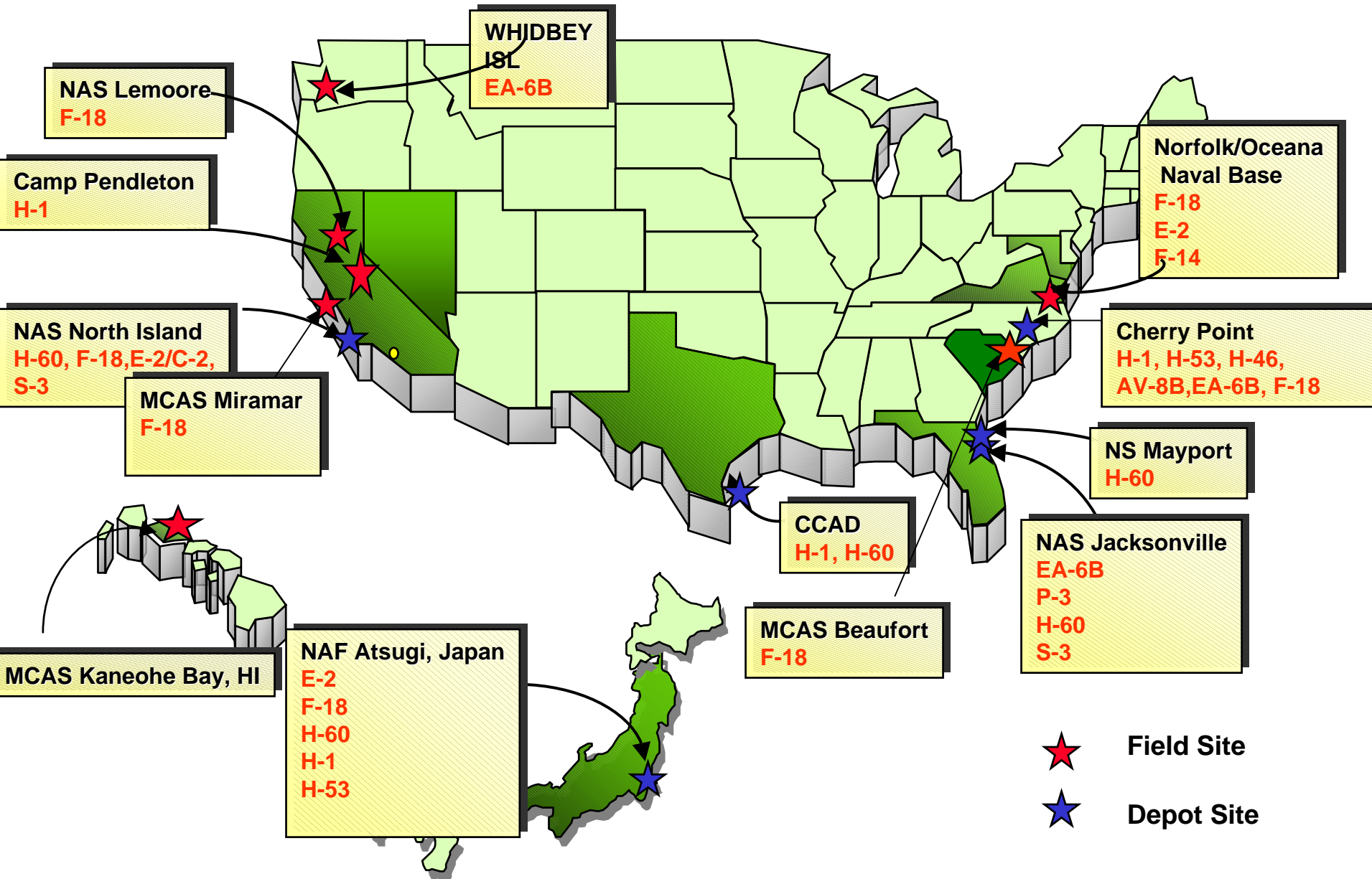


**11- 12 YEARS SINCE LAST DEPOT INDUCTION**



**Total Operational and Maintenance Service Period**  
**Fixed Service Period (FSP)**

# LOCATIONS







# EXAMPLES OF BENEFITS SEEN BY THE FLEET

## **S-3B:**

- Reduced O-level down time by 25 days per year
- Eliminated 19K maintenance man-hours per year
- Elimination of Calendar day inspections beyond the 56 day (benefit underway)

## **AH-1W:**

- “SDLM” Cost Avoidance of \$830K per A/C inducted
- Reduced Phase Maintenance tasks 50% (from 100hr intervals to 200 hr interval)
- Reduced OTS by 126 days (SDLM 310 days, IMC 184 days over full cycle)

## **EA-6B:**

- Out of service time due to scheduled inspection decreased by 67% (28, 56 and 224 day inspections rolled to the 364 day)
- Post Cruise Inspections revealed that aircraft that have been through a PMI event had a better material condition and less corrosion than was historically noted

# SCOTT NAST BRIEF

# integrated Maintenance Data Collection

- Work Deck

(similar to maintenance requirement cards)

- Maintenance Guide

- provides standard guide through each maintenance event
- supports similar rapid maturation of process at all sites

- Data collection template

- is the template for written feedback from all sites
- data collection parameters are identical for all sites

- data transfer

- data entry from work deck into data base

# Work Deck card - front example

<b>CARD</b> 99	<b>NAVAIR</b> 01-H1AAC-IMC-SPEC <b>DATE</b> 9 August 2001 <b>REVISION</b> DTD	<b>NAVAIR</b> 01-H1AAC-IMC-WD <b>DATE</b> 9 August 2001 <b>REVISION</b> 3 DTD 24 May 2002	<b>BASELINE</b>	<b>ELEC PWR</b> NA
<b>WORK ZONE / TASK NO.</b>	<b>TRADE</b>	<b>BUNO</b>	<b>INSP/TEST/REPAIR</b>	<b>HYD PWR</b> NA
	<b>STRUCTURE</b>		<b>TAILBOOM COLDWORKING</b>	<b>COND AIR</b> NA
8 – 2UY0004	<p><b>NOTE:</b> Ensure all IMC disassembly and inspections have been completed prior to tailboom removal should the tailboom have to be removed.</p> <p>1. Ensure that LES CP 80-50-EE-9238 with Amendment 1 has been complied with. This is a onetime rework of specific areas on the tailboom.</p>			

End of Card

TASK NUMBER	START DATE	FINISH DATE	MMHRS TOTAL	STAMP
2UY0004				

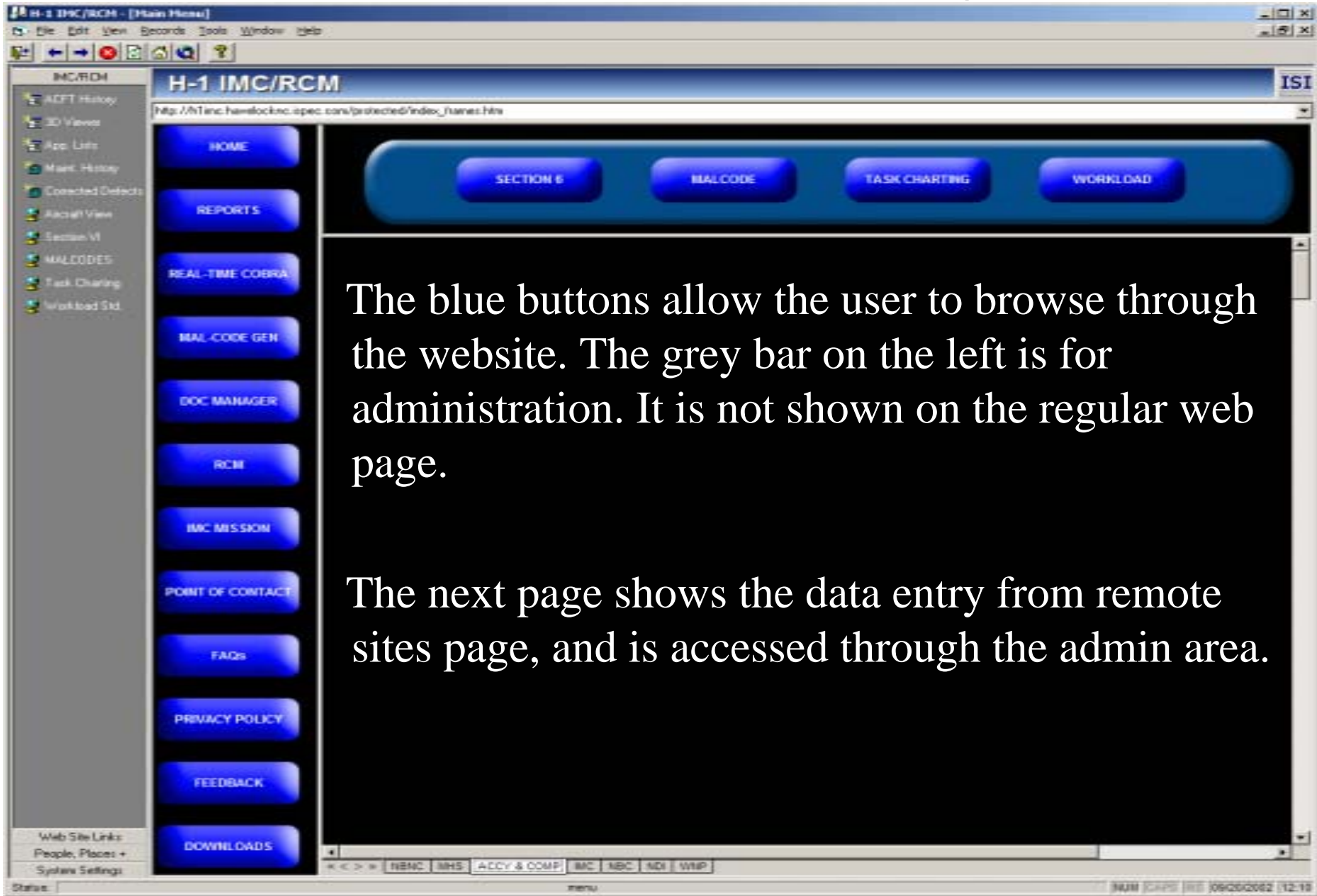
# Work Deck card - back example

<b>CARD</b>	<b>NAVAIR 01-H1AAC-IMC-SPEC</b>	<b>NAVAIR 01-H1AAC-IMC-WD</b>	<b>BASELINE</b>	<b>TRADE STRUCTURE</b>	<b>BUNO</b>						
<b>99A</b>	<b>DATE</b> 9 August 2001 <b>REVISION DTD</b>	<b>DATE</b> 9 August 2001 <b>REVISION 3 DTD 24 May 2002</b>									
<b>TAILBOOM COLDWORKING</b>											
TASK NO.	MAL CODE	LENGTH /WIDTH/ DEPTH	WATERLINE /BUTTLINE/ STATION	CRIT CODE	TYPE DEFECT NBNC ETC	WUC	EST RPR TIME	DESCRIPTIVE DEFECT/DESCRIPTIVE REWORK	MMHRS TO REPAIR	DISCR P/N	QA STAMP
		L	FS								
		W	BL								
		D	WL								
		L	FS								
		W	BL								
		D	WL								
		L	FS								
		W	BL								
		D	WL								
		L	FS								
		W	BL								
		D	WL								

# Data Access and Presentation

- IMC Web Site
  - common portal for:
    - data entry
      - example page
    - reports
      - examples
        - » standardized reports
        - » discrepancies discovered on airframe model
        - » mal code frequency
        - » mal code frequency times cost in man-hours
  - RCM data entry and analysis
  - messages search

# Website Browser Page



The blue buttons allow the user to browse through the website. The grey bar on the left is for administration. It is not shown on the regular web page.

The next page shows the data entry from remote sites page, and is accessed through the admin area.

# Data Entry Form

**H-1 IMC/RCM - [Aircraft IMC History]**

File Edit View Records Tools Window Help

**Aircraft Entries**

Location ▲ ACFT Type ▲

	TEC	BUND	JCN	Production No	Publication	SPEC Rev. No.	SPEC Rev. Date	WKDK Rev. Date	WKDK
*									

[-] CHPT

[-] AH-1W

▶	AHAX	160744	CPNC7W	AFS8102	01-H1AAC	0	08/09/2001	02/15/2002	
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Record: 1 of 1

PMI ▲ Stage ▲

	PMI	Stage ▲	Card	Task	Trade	Instruction	Discrep...	Discrep...	Discrepancy
*									
	3.0	INSPECT	070	ZYB00	SMM		009	NBNC	DRILL UP & INSTL PANEL 97; RE
	3.0	INSPECT	070	ZYC00	SMM	INSPECT TURNLOCK FASTE...	000		
	3.0	INSPECT	070	ZYD00	SMM	INSPECT STUDS FOR GALL...	000		
	3.0	INSPECT	070	ZYE00	SMM	INSPECT HINGE AND HINGE...	000		
	3.0	INSPECT	070	ZYE00	SMM		001	NBNC	REPL HINGE DOOR 87 F/G; REIM
	3.0	INSPECT	070	ZYE00	SMM		002	NBNC	RPR PANEL 87 @ HINGE F/G
	3.0	INSPECT	070	ZYF00	SMM	INSPECT RUBBER STRIPPIN...	000		

Record: 408 of 837

Status: H-1 Fleet Support Team NUM CAPS INS 09/20/2002 12:00



# “Reports”

H-1 IMC/RCM - [Main Menu]
ISI

File Edit View Records Tools Window Help

IMC/RCM
H-1 IMC/RCM

http://h1inc.hawlocknc.spec.com/protected/index\_frames.htm

SECTION 6

MALCODE

TASK CHARTING

WORKLOAD

- HOME
- REPORTS
- REAL-TIME COBRA
- MAL\_CODE GEN
- DOC MANAGER
- RCM
- IMC MISSION
- POINT OF CONTACT
- FAQs
- PRIVACY POLICY
- FEEDBACK
- DOWNLOADS

BASELINE (PM)		ACCESSORIES AND COMPONENTS REMOVED FOR REWORK AND/OR REF			
		NOTE: Disposition Code: (A) = Return to Supply, (B) = Discard, (C) = Repair/Rework, (D) = Facilitate Other Maint		NOTE: TSK = Time Since New, TSO = Time Since Overhaul	
1. AIRCRAFT MODEL		4H-111	2. BUND	1E3948	3. PRODUCTION MO.
No.	NOMENCLATURE	PART NUMBER	REASON FOR REMOVAL		CORRECTIVE ACTION
1	LH & RH ISOLATOR MOUNT FITTING BEARING	MS27841-12	REPL LH ISOLATOR MOUNT FITTING BEARING MAZ7841-12		RIV & REINSTL ISOLATOR, MALS-38 REPL BEARINGS
2	LH & RH ISOLATOR MOUNT FITTING BEARING	MS27841-18	REPL RH ISOLATOR MOUNT FITTING BEARING MAZ7841-18		RIV & REINSTL ISOLATOR, MALS-38 REPL BEARINGS
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4	TAILBOOM BARREL NUTS	NAS57789A	REPL LH BARREL NUT RN NAS57789A		REPL LH BARREL NUT
5	TAILBOOM BARREL NUTS	NAS57789A	REPL RH BARREL NUT RN NAS57789A		REPL RH BARREL NUT
6	TAILBOOM BARREL NUTS	NAS577810A	REPL LH BARREL NUT RN NAS577810A		REPL LH BARREL NUT
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8	LH & RH ISOLATOR MOUNT FITTING BEARING	MS27841-18	REPL LH ISOLATOR MOUNT FITTING BEARING MAZ7841-18		RIV & REINSTL ISOLATOR, MALS-38 REPL BEARINGS
9	HOSE, FUEL	79-061K029W0278A	REPL HOSE ASSY 79-061K029W0278A		REPL HOSE ASSY
10	HOSE, FUEL	79-061K228B474A	REPL HOSE ASSY 79-061K228B474A		REPL HOSE ASSY
11	HOSE, FUEL	79-061L80A384A	REPL HOSE ASSY 79-061L08A384A		REPL HOSE ASSY
12	HOSE, FUEL	79-061L80V872A	REPL HOSE ASSY 79-061L08V872A		REPL HOSE ASSY
13	HOSE, FUEL	79-061L80V304A	REPL HOSE ASSY 79-061L08V304A		REPL HOSE ASSY
14	HOSE, FUEL	79-061M080W704A	REPL HOSE ASSY 79-061M080W704A		REPL HOSE ASSY
15	HOSE, FUEL	79-061X130B470A	REPL HOSE ASSY 79-061X130B470A		REPL HOSE ASSY
16	HOSE, FUEL	79-061Y008V324A	REPL LH HOSE ASSY 79-061Y008V324A		REPL HOSE ASSY
17	HOSE, FUEL	79-061Y008V324A	REPL RH HOSE ASSY 79-061Y008V324A		REPL HOSE ASSY
18	HOSE, FUEL	79-067L179C233A	REPL HOSE ASSY 79-067L179C233A		REPL HOSE ASSY
19	HOSE, FUEL	79-067L195C301A	REPL HOSE ASSY 79-067L195C301A		REPL HOSE ASSY
20	HOSE, FUEL	79-061K030A294A	REPL HOSE ASSY 79-061K030A294A		REPL HOSE ASSY
21	HOSE, HYD	79-053T270E125	REPL HOSE ASSY RN 79-053T270E125 OR RN 79-053T270E125		REPL HOSE ASSY
22	HOSE, OIL	79-061L1208176A	REPL HOSE ASSY 79-061L1208176A		REPL HOSE ASSY
23	TRIPOD ASSY	208-064-102-107	TRIPOD CLEVIS FACES WORN @ ACCESSORY GEAR BOX ATTACHMENT POINT		REPL TRIPOD

Web Site Links
People, Places +
System Settings

Status:
NUM CAPS [RE] 09/02/2012 12:18

# 3D Viewer

H-1 IMC/RCM - [3D MALCODE Viewer (32 fps)]
\_ □ ×

File Edit View Records Tools Window Help
\_ □ ×

**Controls**

- Hide Data Grid
- Timed Population
- Save Image
- Edit Coordinates
- View Settings
- Show Airframe

ID	Zone	BUNO	MALCODE	Sub-Assembly

Record: ⏪ ⏩    of 0 ⏪ ⏩

Status: H-1 Fleet Support Team NUM CAPS INS 09/20/2002 12:01

# 3D Viewer Search Engine

'Discrepancies' Record Selector... (Filter: MCODE <=> 999)
\_ □ ×

Query Builder	(	Field	Comparator	Search Criteria	)	Join
	(	c. Work Zone	Between	'1' AND '9'	)	And
	((	b. MALCODE	=	'020: WORN, STRIPPED, CHAF...	)	Or
	(	b. MALCODE	=	'170: CORRODED'	)	Or
	(	b. MALCODE	=	'190: CRACKED, CRAZED'	)	And
*						

Drag a column header here to group by that column.

BUNO	MALCODE	Work Zone	Sub-Assembly	Discrepancy
163926	20	4	ACCESS PANEL	DRILLUP HOLES
163926	20	1	ACCESS PANEL	DRILLUP DOOR
163926	20	2	GUNNER'S DOOR ASSEMBLY	REPL GUNNER C
163926	20	1	ACCESS PANEL	DRILLUP DOOR
163926	190	6	ACCESS PANEL	REPL ALL HDW &
163926	20	6	ENGINE AREA	DRILLUP NEW H
163926	20	9	ZONE 9	REPL CHAFING S

Record: 11 10 91 of 253 11 10 11 10

Exit

Clear Query

Execute

Preview

Select

Find

Refresh

Help

Formatting

Query Library

# 3D Viewer Populated

H-1 IMC/RCM - [3D MALCODE Viewer (23 fps)]
\_ □ ×

File Edit View Records Tools Window Help
\_ □ ×

Controls

Hide Data Grid

Timed Population

Save Image

Edit Coordinates

View Settings

Show Aircraft

ID	Zone	BUNO	MALCODE	Sub-Assembly
▶ 159	2	163926	020: WORN, STRIPPED, CHAFED, FRAYED - EXCEPT REPL GUNNER DOOR LATCH ASSY EXCESSIVE PLAY	GUNNER'S DOOR A
186	2	163924	020: WORN, STRIPPED, CHAFED, FRAYED - EXCEPT SMOOTH UP DAMAGE ON SILL @ LOCKING MECHANISM GUNNER DOOR SILL	GUNNER'S STRIKE
12	7	165329	170: CORRODED	ACCESS PANEL

Record: 172 of 314

Status: H-1 Fleet Support Team NUM CAPS INS 09/20/2002 12:05

# “Reports”

H-1 IMC/RCM - [Main Menu]
ISI

File Edit View Records Tools Window Help

http://h1inc.havlocknc.spec.com/protected/index\_frames.htm

IMC/RCM

- ADFT History
- 3D Views
- App Links
- Main History
- Connected Defects
- Aircraft View
- Section VI
- MALCODES
- Task Charting
- Workload Std

## H-1 IMC/RCM

SECTION 6

MALCODE

TASK CHARTING

WORKLOAD

HOME

REPORTS

REAL-TIME COBRA

MAL CODE GEN

DOC MANAGER

RCM

IMC MISSION

POINT OF CONTACT

FAQs

PRIVACY POLICY

FEEDBACK

DOWNLOADS

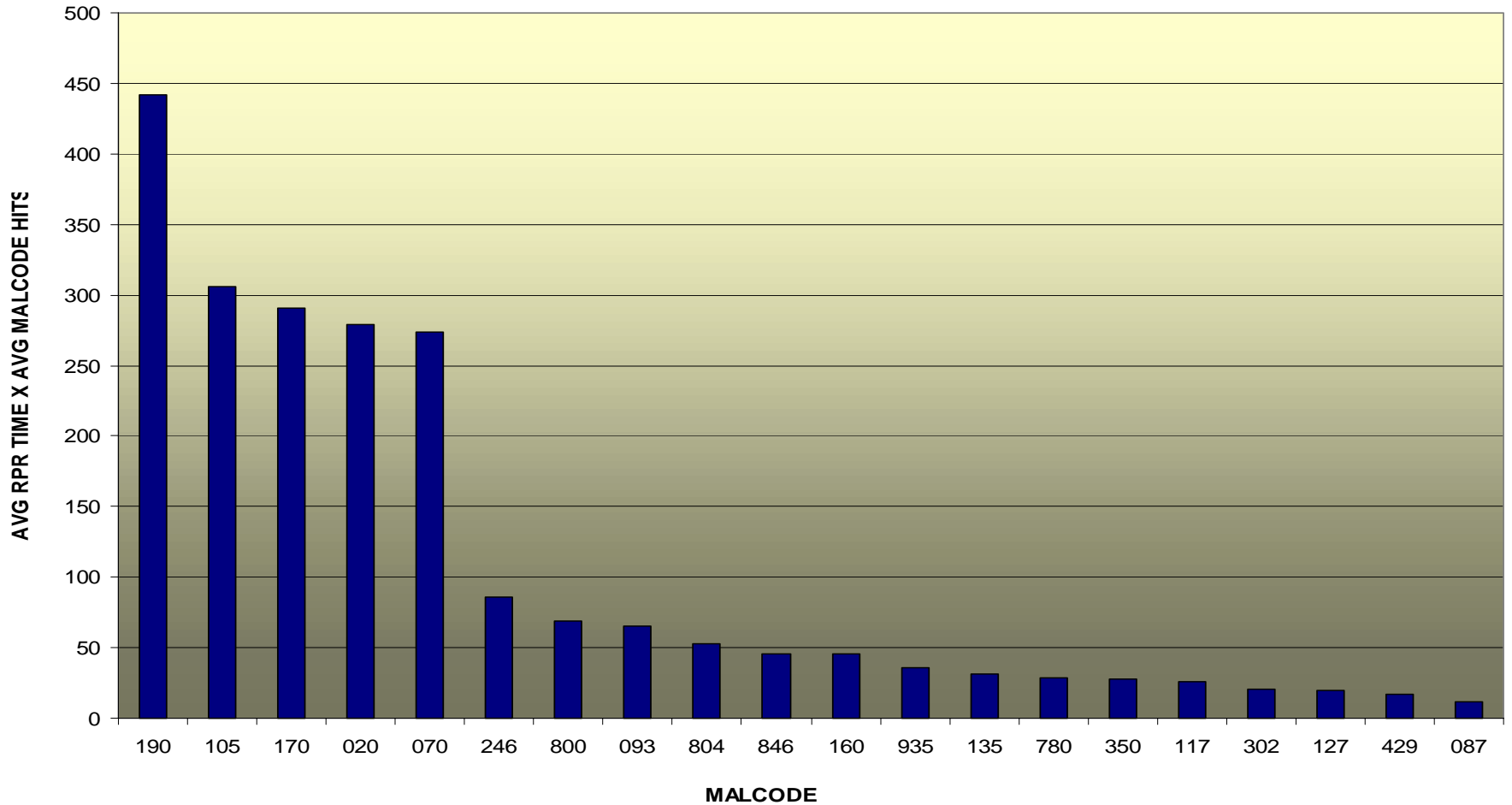
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14	HOSE, FUEL	79-061M080W704A	REPL HOSE ASSY 79-061M080W784A	REPL HOSE ASSY	
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Web Site Links People, Places + System Settings

Status: |
NRNC MNS ACCY & COMP BIC NBC MDI WNP
NUM CAPS [R] 09/02/2012 12:18

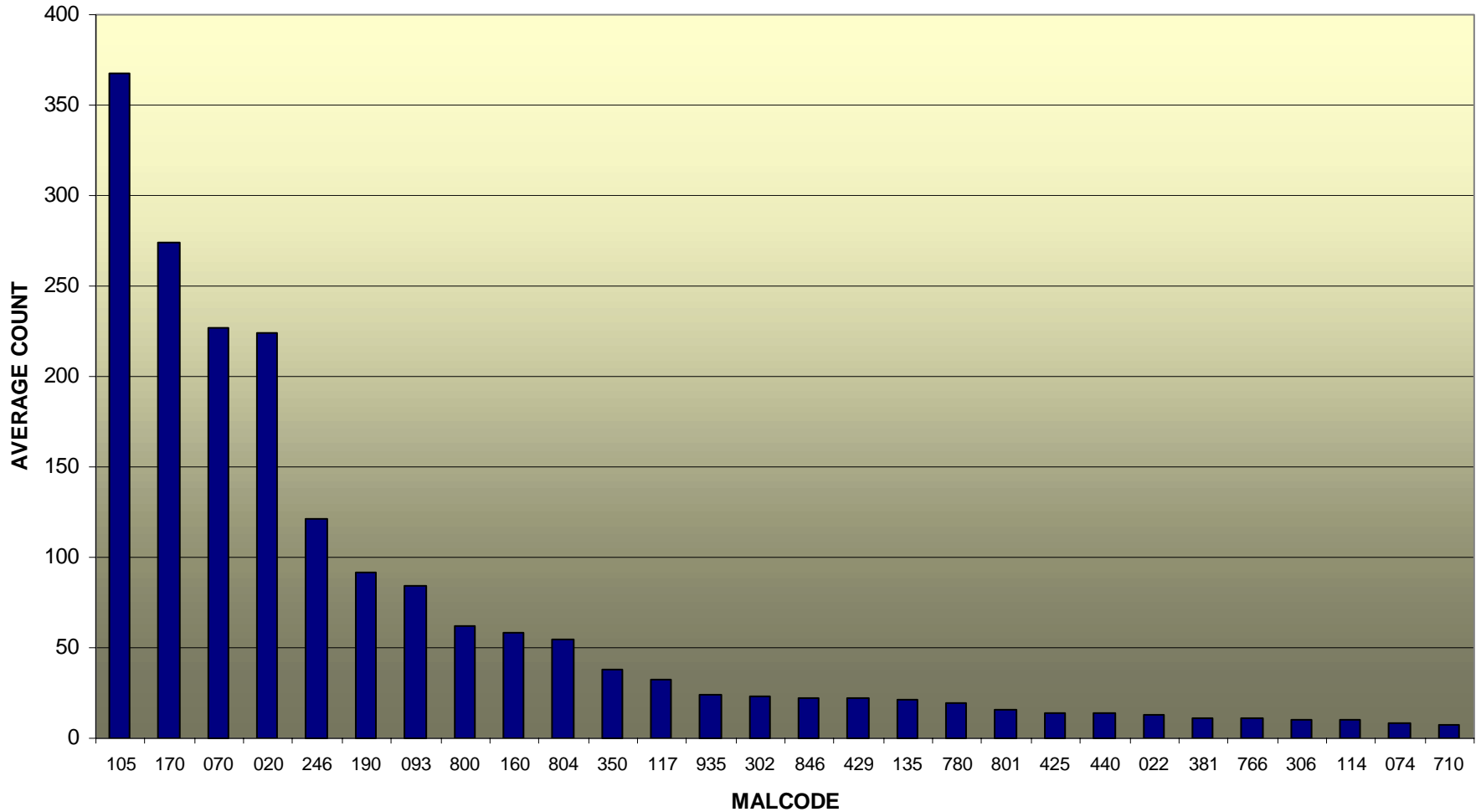
# MAL CODES

## AVG RPR TIME X AVG MALCODE TRUNCATED



# MAL CODES

## AVERAGE MALCODE COUNT ALL SITES TRUNCATED

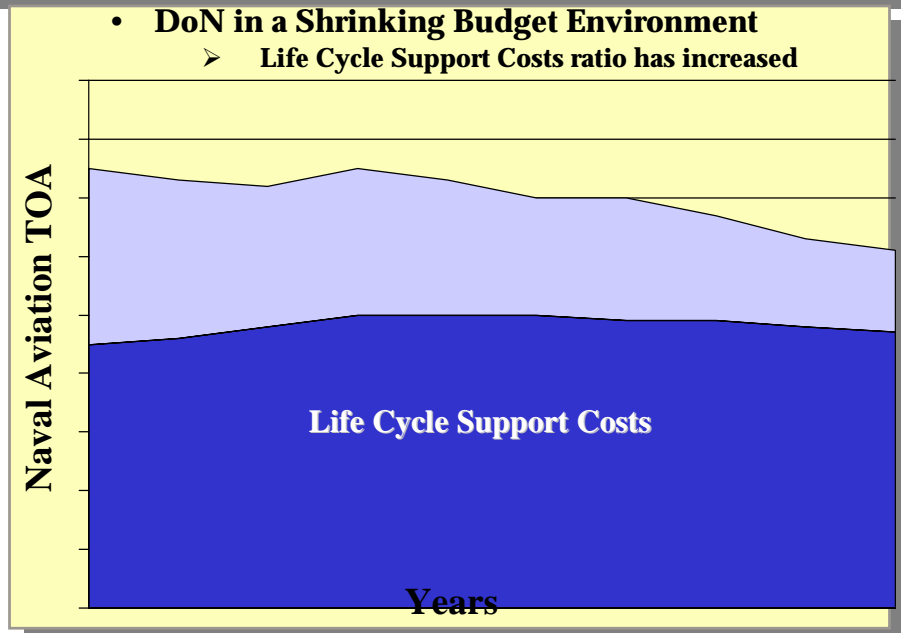
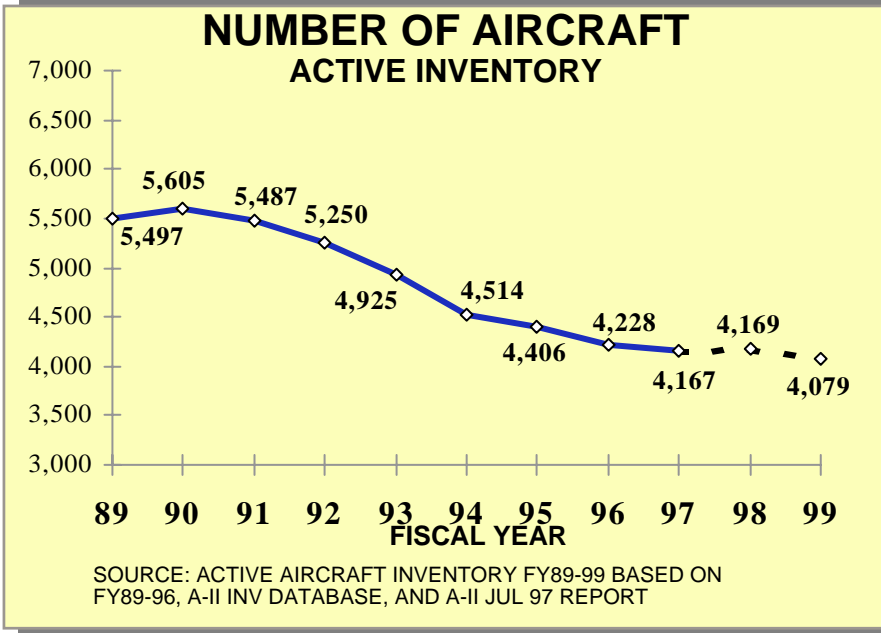
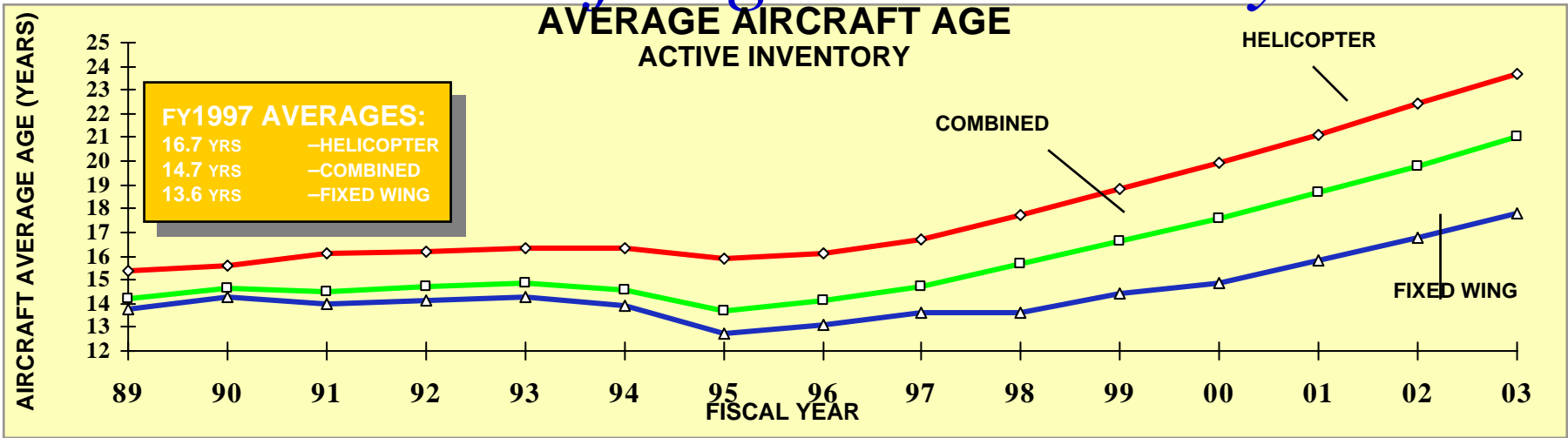


# BACKUP SLIDES



# Background

## Aircraft Age & Inventory



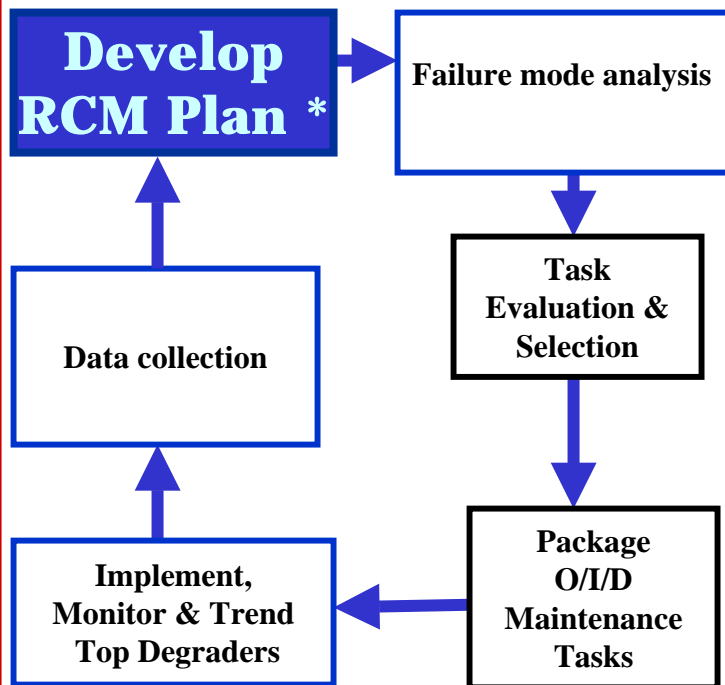
# Reliability Centered Maintenance

## What is RCM?

A life cycle process that:

- Establishes and adjusts preventive maintenance (PM) requirements for all maintenance levels. Bases PM on the failure characteristics of the equipment
- Allows equipment to realize its inherent reliability at lowest cost

## RCM LIFE CYCLE



Requires PRL funding

\* RCM plans is approved by NAVAIR

## Fleet Benefits

- Improved ACFT material condition
  - Increased ACFT Availability
  - PM tasks completed at the right interval, by the appropriate skill level unconstrained by traditional locations
  - Reduced O-level down time and maintenance requirements
  - Reduced ISR cost
  - Integration between O/I/D as appropriate
- Savings generated by RCM is across the Fleet
- P-3 Flap Actuator \$6 Million over 5 years
  - EA-6B Landing Gear \$7 Million Dollars over 5 years
  - T-45 84 day Corrosion Inspection Large Reduction in Labor man-hours and airplane down time
  - E-6 Aft Engine Mounts \$1.5 Million over life of A/C
  - AH-1 Change to IMC 30% reduction labor man-hours 50% reduction in Depot turnaround time

