

Advanced Amphibious Assault Vehicle (AAAV)

DMSO Conference

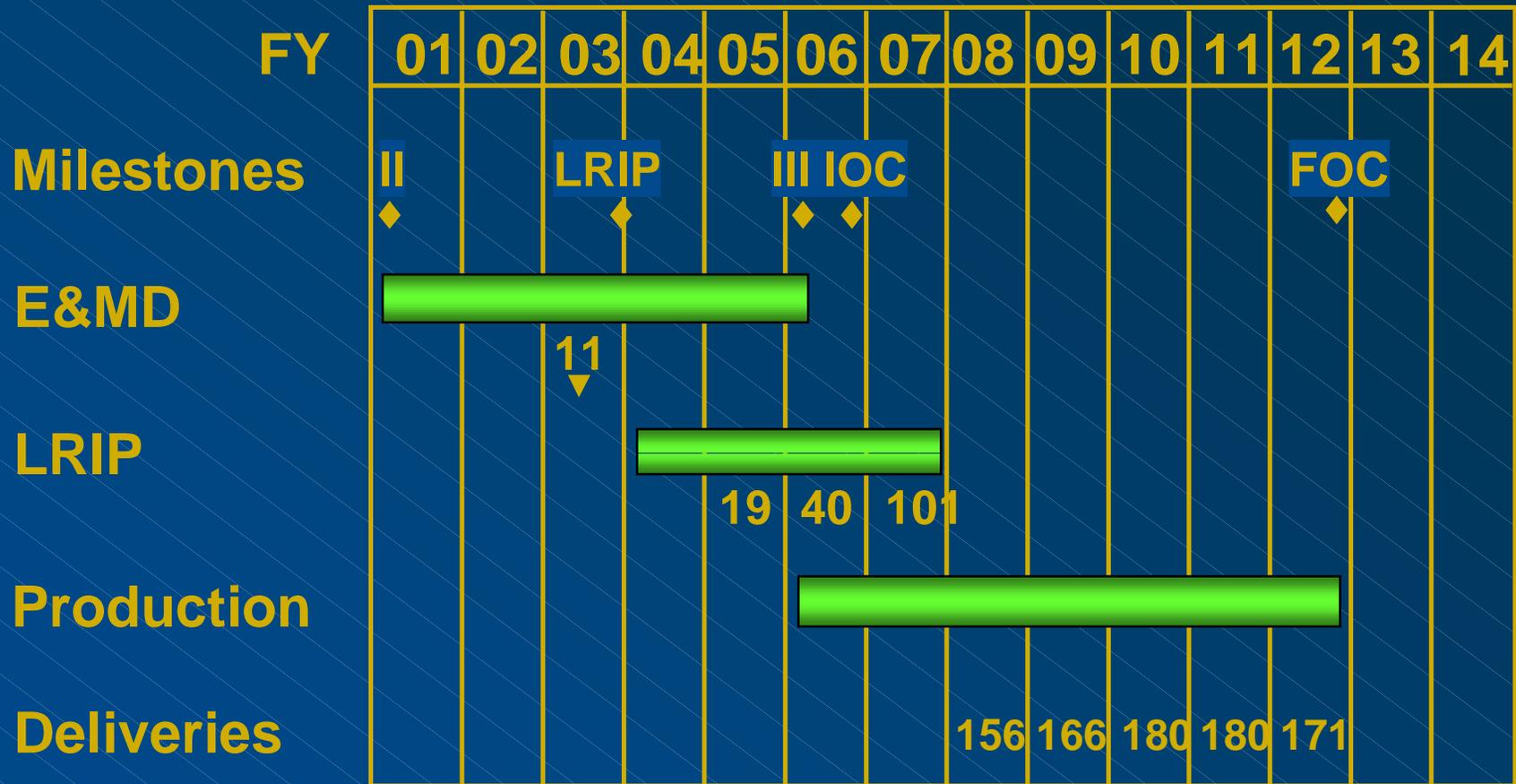
6/2/99

Panel Discussion



Mark Routson/AAAV M&S IPT Lead

AAAV / USMC PROGRAM SCHEDULE



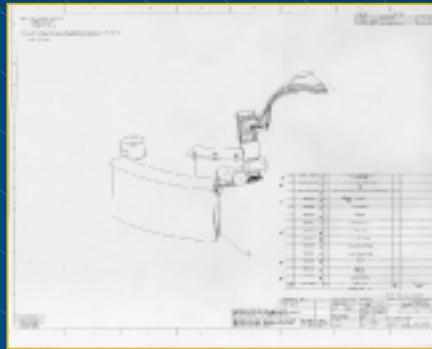
VIRTUAL INTEGRATION & ASSEMBLY

- SEEKS TO INTEGRATE LIFECYCLE DOCUMENTATION PROCESSES
 - Prototype Assembly Mfg Build, Tech Manuals
- PROVIDES COMMON WEB INTERFACE TO WIDE VARIETY OF DATA SOURCES
 - Useable By Mechanics, Mfg, and Logistics
- ENSURES EFFICIENT DEPLOYMENT OF MULTIPLE DOCUMENTATION SOURCES
 - Removes Reliance On Drawings
 - Simplifies Configuration Management

INTEGRATED PDRR/EMD/IETM PROCESS DEVELOPMENT

Standard Method - Independent Management

Assembly Drawings



Prototype

Interface (New Drawings, ...)

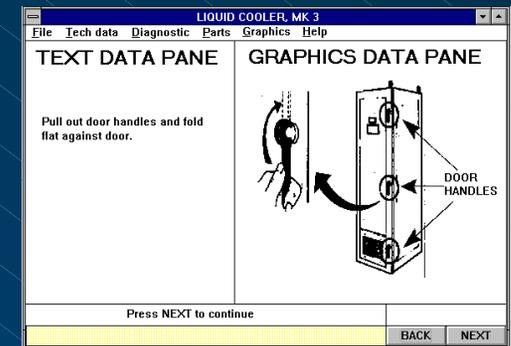
Process Sheets



Manufacturing

Interface (New Drawings, ...)

Interactive Electronic
Technical Manual

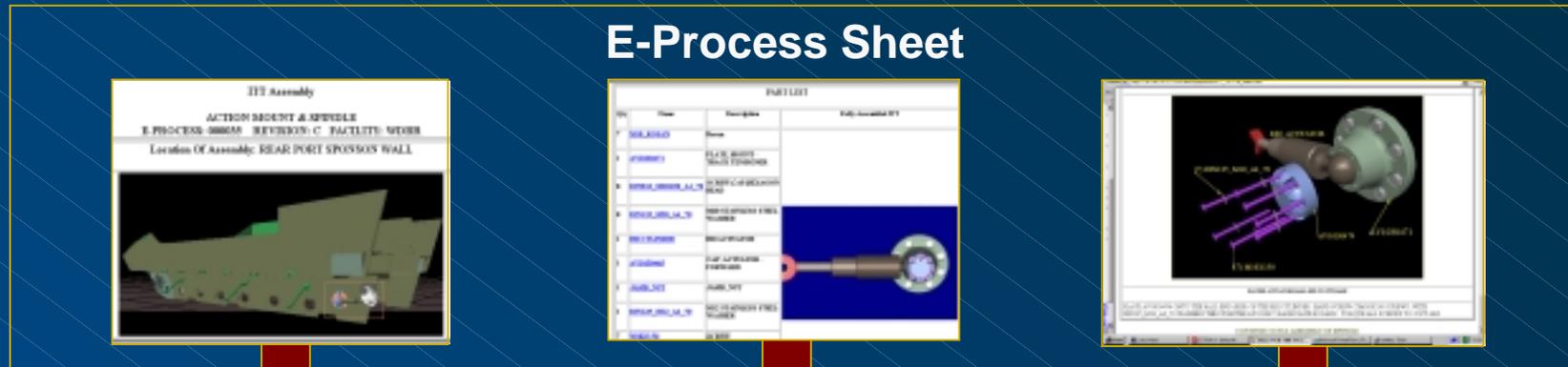


Fielding

Standard "Stove Pipe" Approach To Development
Generates Similar Redundant Documents To Support
Weapon Station Life Cycle. Redundant CM, Development,
And Inconsistent Data Often Results From This Approach.

INTEGRATED DEVELOPMENT / MFG / LOGISTIC SUPPORT PROCESS DEVELOPMENT

Integrated Process Development



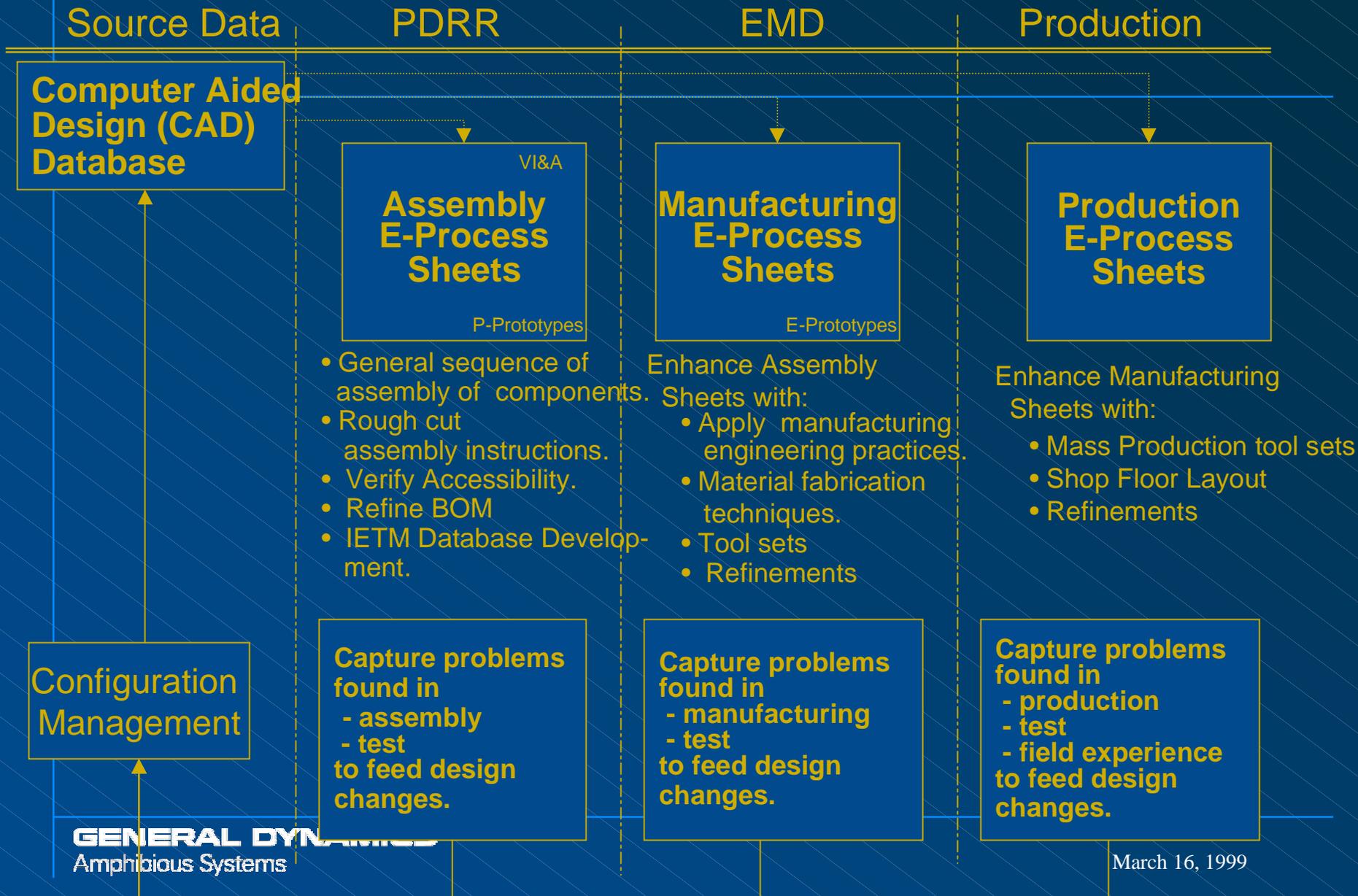
Prototype Build

**Manufacturing
Operation
Sheets**

**Fielding
IETM**

Integrated Approach Reduces Redundant Documentation Efforts. This simplifies CM, Development, and greatly increases data consistency (e.g. improves quality) at a reduction of cost.

VI&A Tie-in to Production



VIRTUAL INTEGRATION & ASSEMBLY

Hardware



AAAV Build



LAMP Fab



AAAV Test



AAAV DRPM

World Wide Web (Hyper-Link, Embedded Functions, Security)

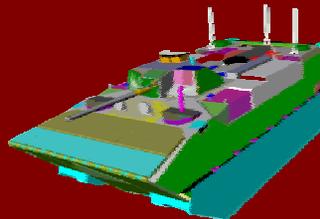
Application(s)

Virtual Collocation

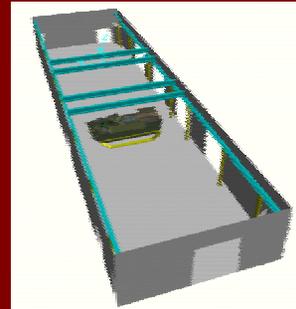


VTC, Whiteboard, App Sharing

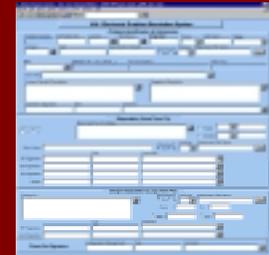
Assembly Data/Notes



Simulation



Problem Reporting



Data Sources

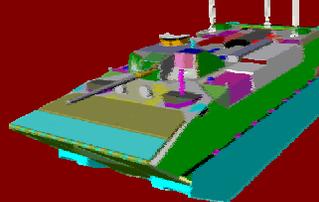


Procure



Inventory

Models



CM



SEDS

Virtual Integration & Assembly Integrated Manufacturing Knowledge Base

AAAV Virtual Integration & Assembly - Microsoft Internet Explorer provided by CSC

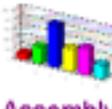
File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address <http://vintegal/> Links

AAAV Virtual Integration & Assembly

Wednesday, June 2, 1999
13 days until roll-out!

 Inventory Control More info	 Process Sheets More info	 Problem Reporting More info	 Video Animations More info	 Engineering Guidance More info
 Virtual Co-Location More info	 Weight Recordings More info	 Assembly Status More info	 Schedule More info	 Changes More info

AAAV Virtual Integration & Assembly Program is the FY 1998 winner of the Defense Modeling and Simulation Management Office award in the category of Acquisition-Non Government

GENERAL DYNAMICS
Amphibious Systems

March 16, 1999

Integrated Inventory Control

Mapping Manufacturing Tasks To BOM

Engine

I&A TASK

IPT	Task Code	Task Description	Early Start
Engine	I&A02	P-1 Install Primary Engine	04/26/1999
Engine	I&A06	P-1 Install APU	
Engine	I&A201	P-1 Rework Hull Structure	
Engine	I&A37	P-1 Install Fuel System	
Engine	I&A37A	P-1 Install Fuel System Exter	
Engine	I&A40	P-1 Install Engine Cooling Sy	
Engine	I&A41	P-1 Install Air Induction Syste	
Engine	I&A42	P-1 Install Exhaust Systems	

Microsoft Internet Explorer provided by CSC

Address: http://131.101.201/eng/PLM/001.asp?tab=2422003.ppt2/Engine

Engine : I&A02 : P-1 Install Primary Engine Vehicle : P1

Line #	Part Part	Alias Part	Description	Part Qty	Inv Qty	Process ID	Comment
1	av04002.asm		ENGINE	5		PS0405	In stock
2	av04012.prt		MGENT.	5	3	PS0408	In stock
3	av04011.prt		STAND	5		PS0408	press date 777
4	av04012.prt		PLATE	2		PS0408	In stock
5	av04013.prt		SWITCH, PRESSURE	5		PS0405	press date 675
6	av04011.prt		SWITCH, PRESSURE	2		PS0408	press date 675
7	av04020a.prt		COVER,	5		PS0405	to be released 67
8	av04025.prt		SETScrew, SOCKET	8		PS0408	In stock
9	av04010.prt		MGENT.	5	3	PS0408	In stock
10	av04000.asm		VALVE, CHECK	2		PS0405	press date 67
11	dv001_av0401_av_01.prt		SCREW, CAP, SOCKET, CONICAL HEA	8		PS0408	In stock
12	dv001_av0401_av_03.prt		SCREW,CAP,HEXAGON HEAD	4			In stock
13	dv001_av0401_av_02.prt		NUT, FLANK, HEXAGON	12		PS0408	In stock
14	dv001_av0401_av_03.prt		NUT, FLANK, HEXAGON	3		PS0405	In stock
15	av04013.prt	AV04013.PRT	ENG SLEE BACK	5		PS0408	In stock
16		AV04001R.prt	Single Engine Mount	8		PS0405	In stock
17		AV04002.prt	Support Rack	8		PS0405	In stock
18		00012 M00100 AA		8	14	PS0408	In stock

Problem Reporting

Capturing Problem Knowledge In Real-Time At The Point Of Occurrence

Electronic Problem Resolution System - OnLine Reports Home page
em - OnLine Reports. This WWW interface is directly c

This WWW interface is directly connected with the EPRS problem reporting system. Through this web page, the user can directly access any and all problem report information. Listed directly below are the various states of the problem reports.

Metrics - For Making Your Problem Reporting Close-Out Easier

- Summary Metric - Quick Look At Close-Outs [Summary Metric](#)
- ECI Metric - Open ECIs (no assigned ECI #) [ECI Metric](#)

Mobility

- Automotive Drive Trains [Total](#) [Open](#) [Shortfix](#) [Recent](#)
- Engine [Total](#) [Open](#) [Shortfix](#) [Recent](#)
- Hydraulics [Total](#) [Open](#) [Shortfix](#) [Recent](#)
- Hydrodynamic Systems & Appendages [Total](#) [Open](#) [Shortfix](#) [Recent](#)
- Marine Drive Trains [Total](#) [Open](#) [Shortfix](#) [Recent](#)
- Suspension [Total](#) [Open](#) [Shortfix](#) [Recent](#)

Oil & Vibration Products

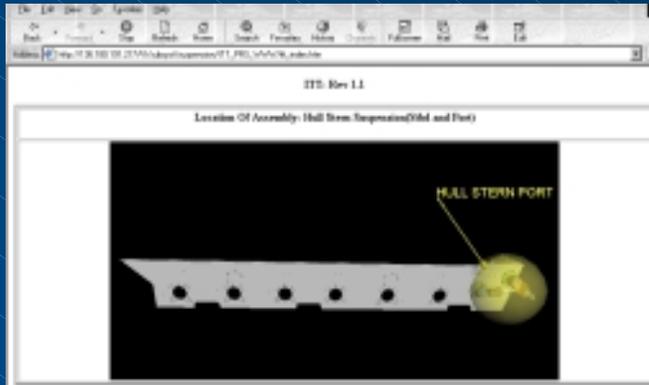
Entry Id	Status	Priority	Submitter	Short Title
3225	OPEN	MEDIUM	millerkm	Missing Aperture
3221	SHORTFIX	HIGH	millerk	Cooling Apertures and floor sup
3132	SHORTFIX	MEDIUM	millerk	FUEL LEVEL SENSOR NO FIT
3148	OPEN	MEDIUM	moyard	APU Exhaust Duct Aperture
3252	SHORTFIX	MEDIUM	millerk	Tolerance
3265	SHORTFIX	HIGH	millerk	Assembly interference
3266	SHORTFIX	HIGH	millerk	Modification of engine naver rack bracket
3277	SHORTFIX	HIGH	millerk	Engine Bearing plate mounting hole adjustment
3281	SHORTFIX	HIGH	millerk	Addition of liquid shim access hole
3282	SHORTFIX	HIGH	millerk	weld interference with flat washer
3284	OPEN	HIGH	daszkad	Interference between engine and engine naver hinge
3289	OPEN	MEDIUM	hambly	no fit for engine mount fasteners
3319	SHORTFIX	HIGH	millerk	Add holes for coolant lines
3336	OPEN	MEDIUM	millerk	Fan/Hull mounting interface
3369	OPEN	MEDIUM	daszkad	Installation of thermostat housings

VM Electronic Problem Resolution System (EPRS) Report Form							
PROBLEM IDENTIFICATION							
PROB ID	ALT PROB ID	VEHICLE	SITE	ORIGINATOR	PRIORITY	DATE OPENED	STATUS
3369		41	SCHWED	daszkad	MEDIUM	08/07/99 10:47:00	OPEN
CATEGORY	TYPE	KEYWORDS					
Deep IMV	WHLR PLACEMENT	Thermostat cooling component					
OPT	ITEM (Fuel Str, Prop Struts, etc.)	ITEM DESCRIPTION					
Engine	AV104007-ASM	THERMOSTAT HOUSING					
WHLR ASSEMBLY (Optional)		ATTACHMENT					
AV104007-ASM							
PROBLEM DESCRIPTION							
SHORT TITLE							
Installation of thermostat housings							
PROBLEM DESCRIPTION				SUBMITTED SHORT TERM FIX			
INSTALLATION of thermostat housings to installation of the thermostat housings were located slightly out of position resulting in incorrect alignment between the outlet of the thermostat and the inlet to the solution U.				INSTALLATION of thermostat housings to installation of the thermostat housings were located slightly out of position resulting in incorrect alignment between the outlet of the thermostat and the inlet to the solution U.			
SUBMITTER				DATE	DATE	COMMENTS	
daszkad				08/07/99	10:47:00		
DISPOSITION (of Short Term Fix)							
SUBMITTER				SHORT TERM FIX			
				INSTALLATION of thermostat housings to installation of the thermostat housings were located slightly out of position resulting in incorrect alignment between the outlet of the thermostat and the inlet to the solution U.			
AFFECTED BY:				DISPOSITION			
ROOT CAUSE				MRO			
SUBMITTER				DATE	COMMENTS		
NA				DATE	COMMENTS		
CA				DATE	COMMENTS		
VERIFICATION (of Short Term Fix)							

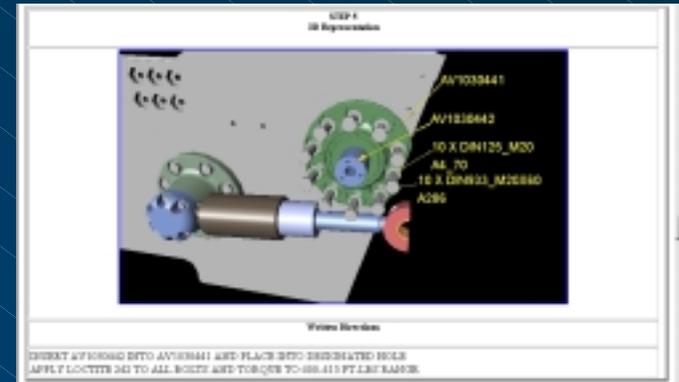
E-Process Sheet

Detailed Assembly/Mfg Knowledge

Location Of Operation



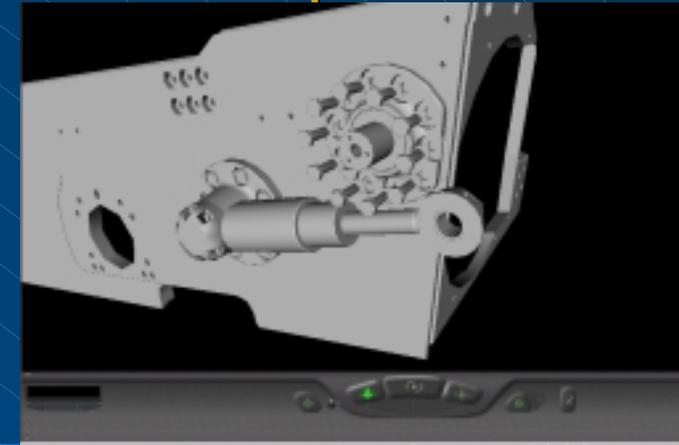
Step By Step Instructions



Assembly BOM

PART BOM						
Parent BOM				MATERIAL NAME		
Qty	Detail	Type	Quantity	Unit	DESCRIPTION	REV
1	ASSEMBLY		1.00	-	BODY BASE	
16	10X DIN125_M20		1.00	-	10X 10MM STAINLESS STEEL WORM	
1	16X DIN913_M20B80		1.00	-	16MM CAP SCREW HEAD	
1	ASSEMBLY		1.00	-	BODY CAP	
2	ASSEMBLY		1.00	-	2X 16MM BALL BEARING, DOUBLE END	
1	AV7039441		1.00	-	Tool Holder	
1	ASSEMBLY		1.00	-	FORWARD CAP	
1	10X DIN125_M20		1.00	-	10X 10MM STAINLESS STEEL WORM	
1	16X DIN913_M20B80		1.00	-	16MM SCREW HEAD	
1	ASSEMBLY		1.00	-	TOP BEARING	
1	ASSEMBLY		1.00	-	AFT CAP	
1	10X DIN125_M20		1.00	-	10X 10MM STAINLESS STEEL WORM	

VRML Of Step



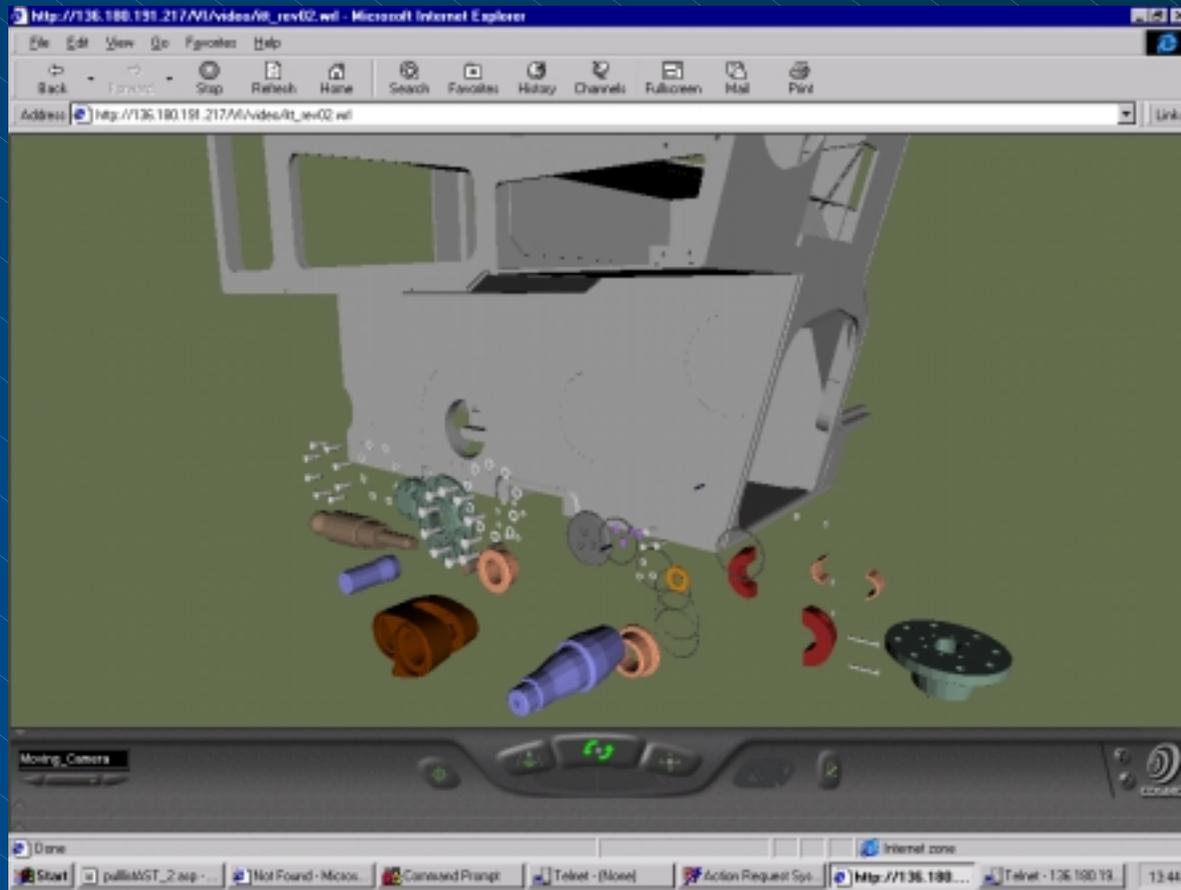
GENERAL DYNAMICS
Amphibious Systems

March 16, 1999

Produceability Simulation

Assess Assembly/Mfg Before Build

Doubles As Mfg/IETM Training



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