

Bob Baccus

**Contractor for Jacobs Sverdrup – doing work for
US Army Aviation & Missile Command**

Redstone Arsenal, AL

**MEARS Project Lead – lead team of contractors in
Development & Support of MEARS product**

John Rogers

Government Program Manager

**Thank Mr. MacDonald & Ms. Dollberg for the opportunity to talk
to you about MEARS.**



MEARS



- Saves Time and Money
- Flexibility of Product
- Best Business Practice
- Built to meet Government Requirements



In this Presentation I am going to show you how

MEARS will save you Time and Money. You will receive a great return for your investment in MEARS

MEARS is very flexible, doing a lot of things in a number of ways. We are listening to our customers to make upgrades to MEARS.

Adhere to Best Business Practices – being reviewed by Best Manufacturing Practices next month.

MIL Handbook 61-A – AND we are adding other Government Forms and Documents to our product as requested by our customers



MEARS



•Average number of pages per ECP	100
•Average number of ECPs per year	66
•Average number of users	175
•Average price for 1 sheet of paper	\$0.01
•Average price for postage per doc	\$5.00
•Annual Paper Cost	\$11,550.00
•Annual Postage Cost	\$57,750.00
•Annual Reproduction Cost	\$15,000.00
•Total Annual Cost of Paper	\$84,300.00



**One of our customers did a cost analysis of processing ECPs
This came from the Lower Tier Project Office – Patriot –
2 years old**

This is just Material Cost – Does not count the cost of Man Hours



What's MEARS



- Automates the business process of engineering change
- Users in geographically dispersed locations can communicate
- Provides for concurrent creation and review of information
- Enables users to comment, redline, vote and archive data
- Allows for electronic Configuration Control Board (CCB)
- Integrates data with CM relational databases, PDMs, etc
- Managers can monitor/manage the engineer change process



Automates – Takes away the paper & delivering ECPs

Users all over the world – those on TDY – can take part


Easy to create & review ECPs

Users can add comments and Redlines to attached drawings and documents. These are saved and displayed by user


You set up your own Configuration Control Board – Different Board for different programs – same people / different roles

Easy porting of data to your own database – no need for entering data twice


Managers can keep status of progress and manage it



Background



- **Continual Improvement Through Evolutionary Development**
 - **Developed after CALS Cost Study - FY 90**
 - **Selected by JLSC, Mid 90's as the ECP tool of choice for DoD**
 - **Released Web Version, Late 98**
 - **Enhanced the system with XML capabilities - Aug 01**
Joint Engineering Change Management Model-JECMM



Developed by Government

Owned by Government

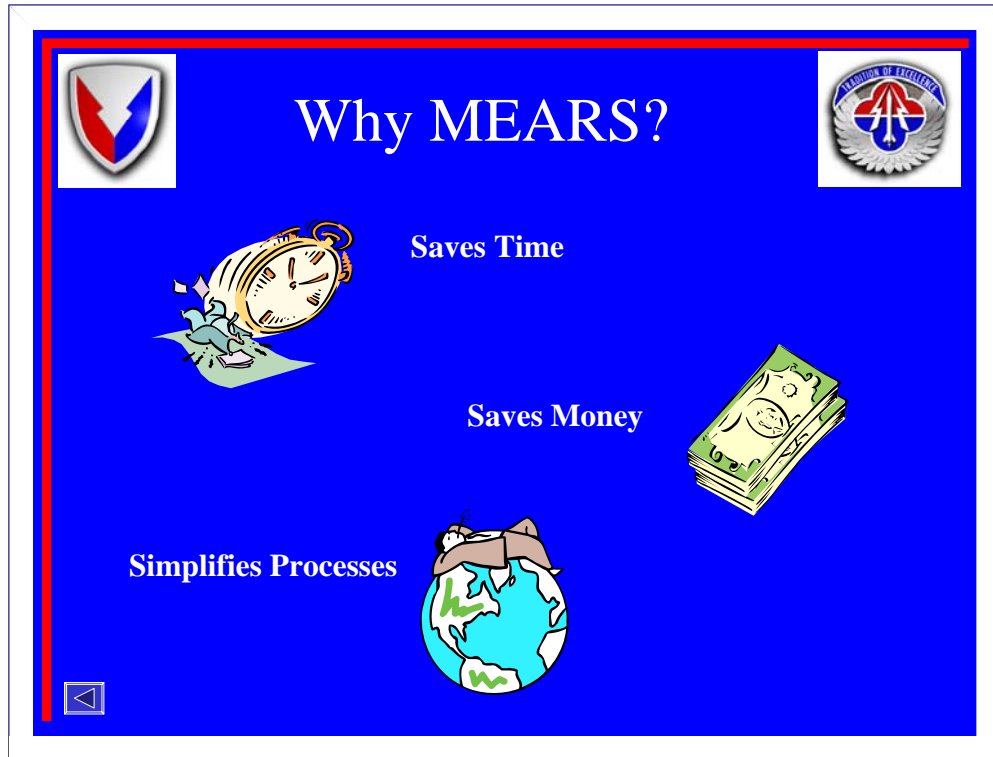
Controlled by Government

Current Version uses Sun Java 2 for displaying data on individual systems.

Next Year – Future MEARS – may use .NET

Release Nov. 6 – Feature Additions

Our customers Love it. They have said they cannot get along without it.



Why use MEARS?

MEARS fits a unique position in the world of Engineering Change Processes


Nothing like it – there are other document management programs – but nothing that handles ECPs, RFWs, and RFDs like MEARS

MEARS is growing and developing new processes – SCN – Software Change Notification – Short Form


Classified Version – used by one customer - SIPRNET

Links to JEDMICS & CMIS


World Class Customer Support



Time



- Has reduced ECP review time by 85%
- MEARS review time for standard ECPs
 - Comments due: 11 days
 - CCB date: 14 days
- Can be as quick as 1 day
- Populates relational databases without duplicating data entry (CMIS, JEDMICS...)



Saving Time

Comments due – 11 days

CCB date - 14 days

This is the average set by our customers. You can configure you own schedule.

Could process an ECP in as little as 1 day

Populates databases without duplicating data – CMIS – JEDMICS



Money



- **Cheaper to produce ECP revisions**
- **Reduces amount of paper used**
- **The time factor in approving changes is your biggest money savings.**



Saves Money

Reduces Paper Cost

Reduces Mailing / Transporting Cost

Reduces Time – biggest saving factor

Think about the time to

- 1. Create an ECP**
- 2. Attach the drawings & documents to it**
- 3. Make Duplicate copies**
- 4. Deliver it to the Reviewers**
- 5. Have them review it, redline the drawings, add comments to the document**
- 6. Deliver the marked up drawings to all reviewers**
- 7. The Approval Authority obtain all documents, comments, and then make a decision**



Process Simplification



- USCG Short Form to submit ECRs from the field
- Allows for preliminary and formal review processes online.
- ECP status at a glance with a chain of command review structure.

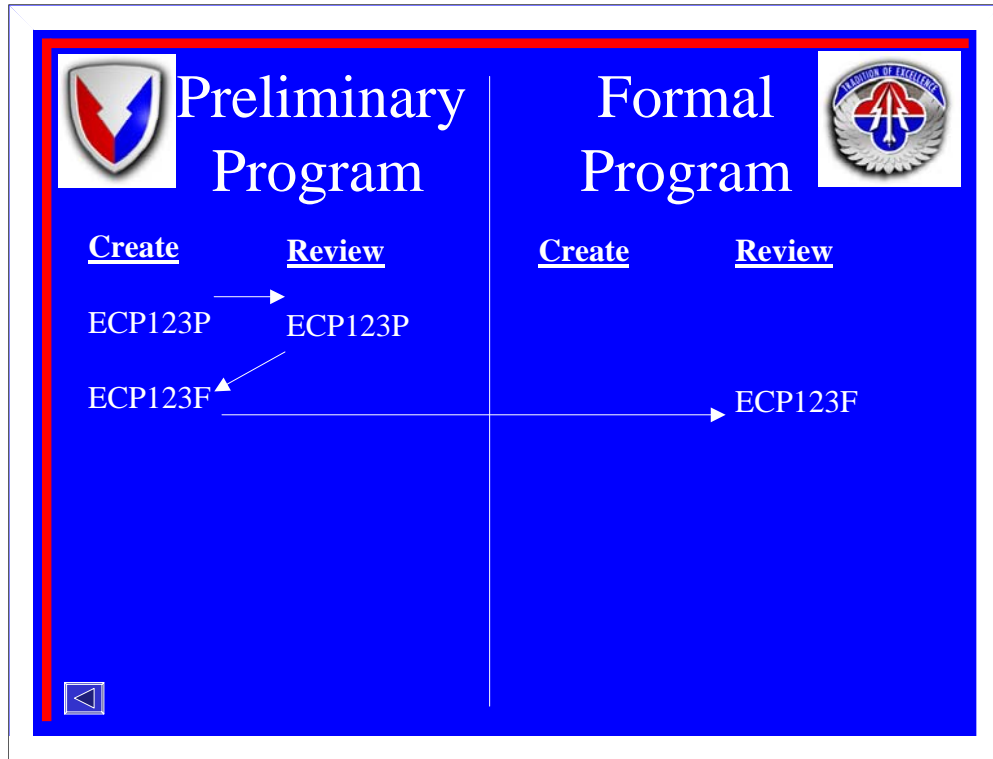


Short Form created for Coast Guard

Wanted ability for person in field to create ECP on site – using only Necessary Fields

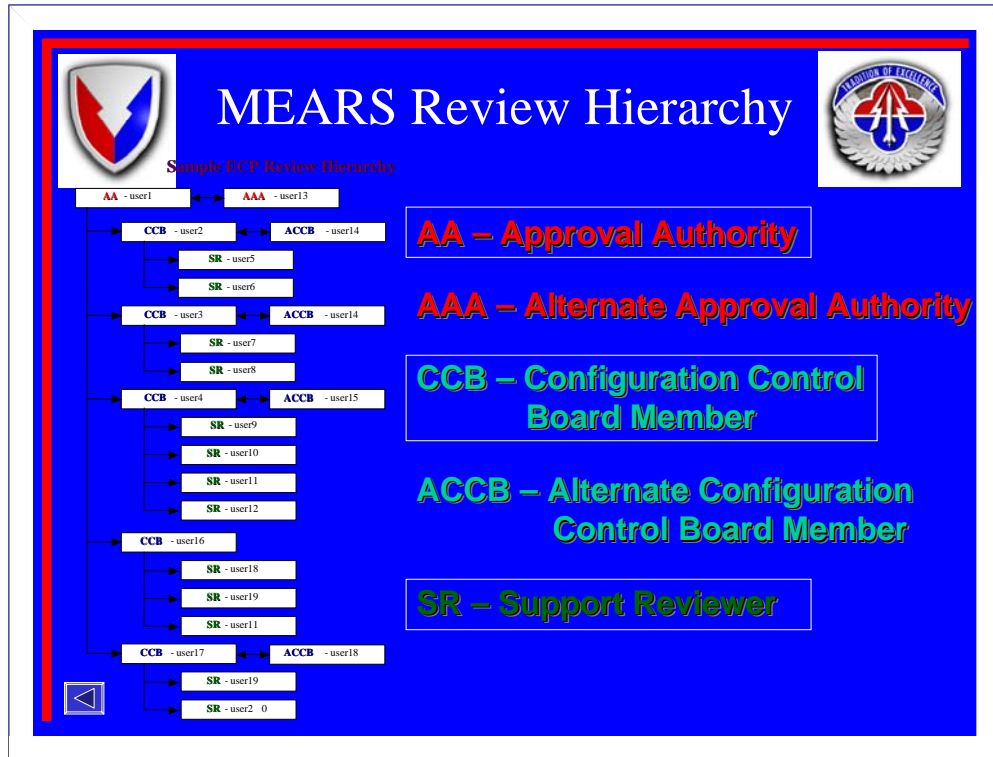
Create ECP – conduct own internal review with a few people – make corrections – place it out for formal review

Approval Authority – check to see who has opened the ECP – read comments – see who has voted on ECP



Here is an example where an ECP is sent for Preliminary Review – ECP123P

It goes back to the Create Step for modification – and then sent to the Final Review – ECP123F




Example of Hierarchy


Top Level – Approval Authority – can have Alternate

CCB Members – Can have Alternate


Each CCB Member can have support Reviewers



More Information



- **MEARS is a Web Based Tool**
 - Owned by the Government (GOTS)
 - Managed by the US Army-AMCOM
 - Supports Project Management Offices/Agencies
 - Reimbursable Funded Program
- **MEARS has Evolved Over Ten Years**
 - Customer Driven Requirements
 - Changes in Standards
 - Improvements in Technology



MEARS is Web Based – meaning that if a user can get to the NET with Internet Explorer – they can get to MEARS.

MEARS is Government Funded and Government Managed – Developed with Government Funds

MEARS supports a number of Project Management Offices and Agencies – and is a Reimbursable Funded Program

MEARS accepts change requests from users – there is a procedure in place for adding Feature Requests to MEARS

MEARS will stay up with the latest Military Standards and Guidelines – MIL Handbook 61 A



Team



- **Program Manager**
John Rogers (Government)
- **Technical Project Lead**
Bob Baccus (Contractor)
- **Developers**
- **DBA**
- **System Administration**
- **Customer Support**



The MEARS Staff includes:

John Rogers – our Government Program Manager
myself – Technical Project Lead
A Lead Developer and 3 other Developers
A Database Specialist
and 3 Customer Support Specialist

System Admin is covered by our Developer Lead and also the
Customer Support Specialist




As you can see – we have a number of customers

The Military – especially the Army – is well represented


We also have a number of Support Contractors who perform work for agencies

MEARS has several Foreign Nationals that support Military Agencies.


MEARS is venturing into the Commercial World and has been favorably received. Look for these announcements in the near future



Overview of the ECP Process



- Create
- Review
- Approve/Disapprove
- Integrate
- Archive



CREATE

Users can cooperatively and concurrently create documents

Data items adhere to MIL-STD 973 & MIL Handbook 61-A

Document templates can be created and reused

Figures and other attachments can be imported

Specs/Drawings affected can be loaded from a repository

Enclosure editor provided

Changes in document information can be noted

Preview allows easy document validation

REVIEW

Concurrent review of documents by members

CCB status visible on documents

Active and Inactive documents are accessible

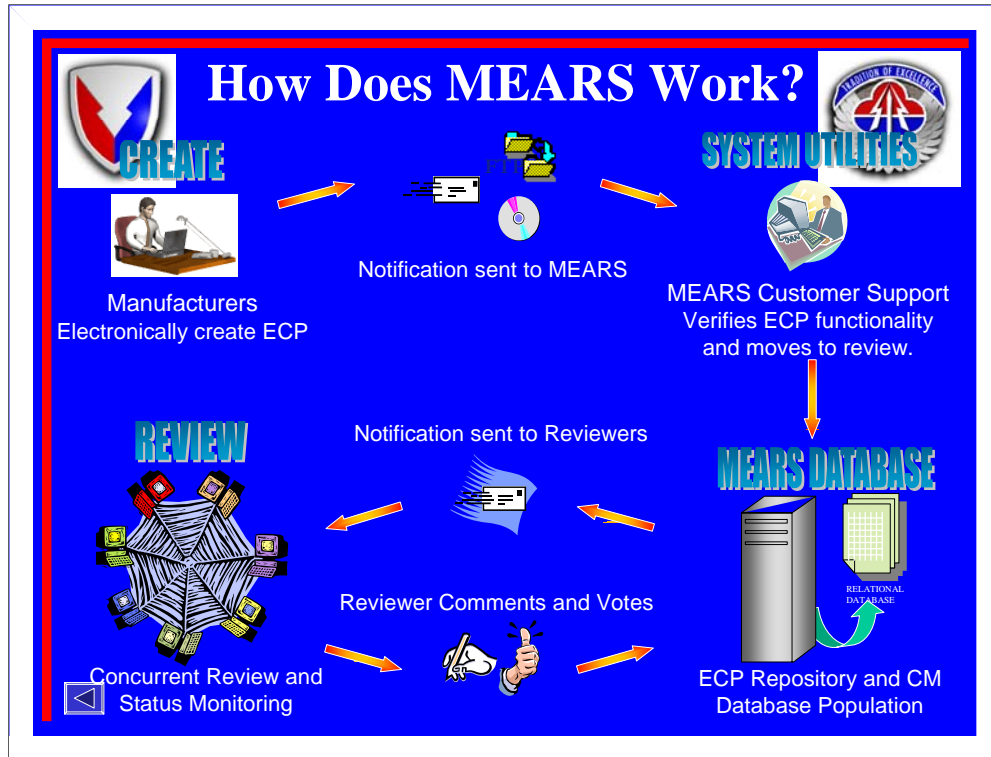
Document status and vote records are always available

Comments easily created and shared

Figures displayed by built-in viewer

Document information can be printed

Document information can be uploaded to relational databases



Selected Persons Electronically create the ECP

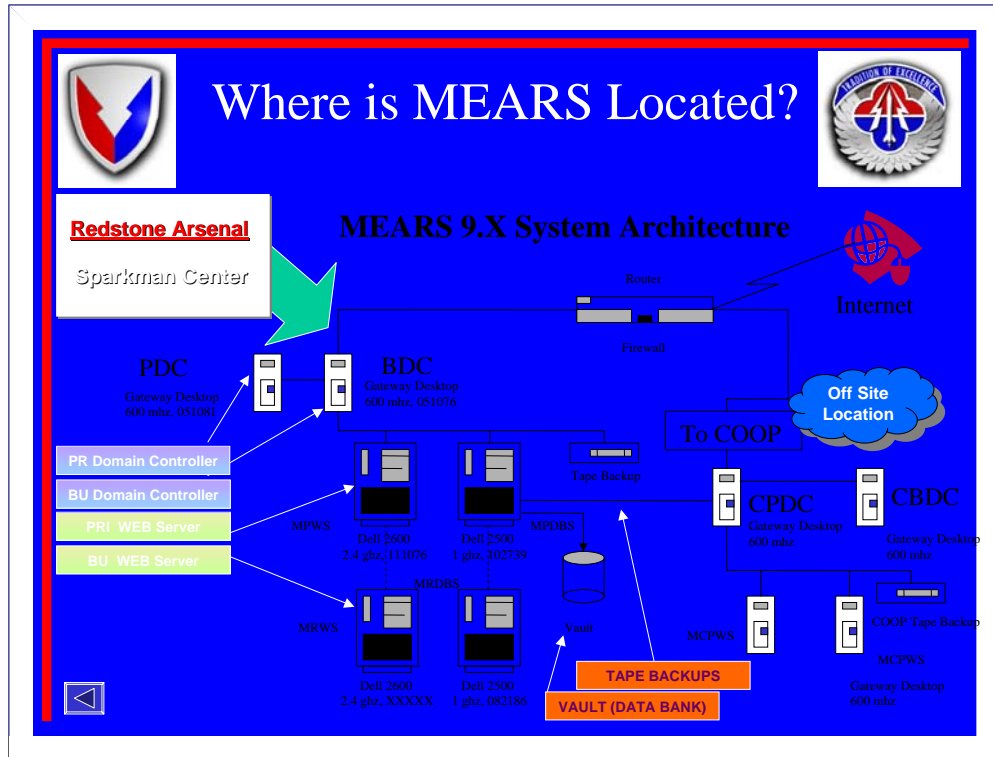
It is then sent to MEARS and our Customer Support group checks the ECP for required fields – the data is not checked

MEARS populates the database with the data

Notification is sent to Reviewers that the ECP is ready for Review

Comments are added and Votes are recorded

Based on Approval Authority's Vote – moved to Archive



MEARS Servers are located in a Secure Basement at Redstone Arsenal in Huntsville, AL

We have a dual backup system – backs up data to disk and tape

Setting up a COOP – Off Site location for Dual Hardware and Software System



Deliverables

- **Web Based Tool**
- **Training**
- **Support Services**



When you obtain MEARS

Receive Access to Web Site –


Creating / Reviewing ECPs, RFWs, RFDs
Creating Reports

Training – On Site or at our facility


3 Hour Create – Just for Creators
3 Hour Review – All Reviewers

Support Services

Phone Support – 7 – 4 Central Time (Answering)
On Site Customer Support (if needed)
ECP Processing / Hierarchy Modifications
Additional New User / New Software Training
Work Group Meetings



Services Offered



- **Customer Support:**
 - ECP/RFD/RFW Processing/User Notification
 - User Account Maintenance
 - Help Desk
 - Refresher Training
 - Working Group Meetings
- **System Administration:**
 - Server Maintenance and Upgrades
 - Data Backups
- **Technical:**
 - Software Upgrades




Customer Support is your interface to MEARS


Dedicated and friendly people to assist you

Call 1 Phone Number – Support Specialist will assist you


They wear a lot of hats and should be able to help you with any questions that you might have.



Features and Benefits



- Streamlines process
- Saves paper, time, and money
- Encourages cooperative and concurrent document processing
- Allows managers to monitor the status of documents
- Controls access to information by user id and password
- Uses standard for document content
- Enforces mandatory data items during document creation
- Enhanced system with XML capabilities




This is a review of our Features and Benefits when using MEARS.

Managers can tell at a glance who has opened an ECP, who has made comments, and who has voted


MEARS data can be ported to relational databases and other programs

MEARS is always looking to the future to add features for our customers

If there is something you need – an addition to MEARS to do something else – LET US KNOW.




User Feedback




Angie Smith CMIS/JEDMICS/MEARS PD
US Marine Corp Albany, GA DSN 567-5586

“MEARS was deployed for selected Marine Corps tactical weapon programs in Dec 1999. Since deployment, MEARS has proven to be a user-friendly, dependable tool in the performance of configuration control and configuration status accounting (CSA) responsibilities.”




The Marine Corps is our largest customer and we have a great relationship with them.

Here is a statement from Angie Smith – our POC with the Marine Corps.




User Feedback




Eric Kessler Engineering Performance Advocate
DCMA DSN 328-0947

“MEARS certainly is one of our DCMA successful practices. Beyond the basic function of the software , what I appreciate most is its flexibility for use with so many technologies of our customers.”




We have been working with several DCMA offices to set up test programs using MEARS.

Eric Kessler works at DCMA Headquarters in the DC area.



User Feedback




Jackie Crepeau **CM Patriot Project Office**
Huntsville, AL **DSN 645-5396**

“We have had MEARS for 10 years.

MEARS Provides:

- Digital representation of the change
- Real time version of the change to all reviewers
- The Change to be time stamped into the system
- Record of all changes to be archived for future references”



Jackie Crepeau is our contact with the Lower Tier Project Office (Patriot).

She was one of the first customers to come on board with MEARS.

A presentation slide with a blue background and a red border. In the top left corner is a shield logo with a red lightning bolt and a blue arrow. In the top right corner is a circular logo with a stylized 'A' and the words 'Pursuing Excellence'. The title 'MEARS Vision' is centered at the top in white. Below the title is a bulleted list of three items. In the bottom left corner is a small square icon with a left-pointing arrow.

MEARS Vision

- Products of the highest quality that deliver “Best in class” value and performance.
- Customer Service that is courteous, responsive, and dependable.
- People who are professional, totally dedicated to exceeding expectations and always appreciative of our customer’s business.

MEARS strives to deliver the Best Product and Support possible.

We hire Customer Support personnel that are courteous, responsive, dependable and informative.

We greatly appreciate our customers, because MEARS is customer driven.

We listen to our customers for Software Feature Upgrades that they think are needed.



Learning More About MEARS



Home Page: <http://mears.army.mil>

E-mail Address: mearssupport@redstone.army.mil

Phone Number: (256) 842-0864/DSN: 788-0864

[MEARS Login](#)





Configuration Management



This is what it looks like...





ELEMENTS OF A CHANGE PACKAGE Preparation & Justification



ECP Pages

Distribution Statement: **Page 1** | Page 2 | Page 3 | Page 4 | Page 5 | Page 6 | Page 7 | Supplemental Information

1. Date (YYYYMMDD): 20030214 2. Procuring Activity Number: 3. DODAAC: 4. Originator Name And Address *

5. Classification Of ECP: 6. Justification Code: C 7. Priority: Urgent 8. ECP Designation *

9. Baseline Affected: ☐ Functional ☐ Allocated ☒ Product 10. Other Systems/Configuration Items Affected: ☒ Yes ☐ No 11. Specifications Affected

12. Drawings/Documents Affected * 13. Title Of Change: M2770 - Revise Cables for Preparation Instructions and Tolerances

14. Contract Number And Line Item * 15. Procuring Contracting Officer

16. Configuration Item Nomenclature * 17. In Production: ☒ Yes ☐ No ☐ N/A

18. All Lower Level Items/Lowest Assembly Affected * 19. Description Of Change *

20. Need For Change * 21. Production Effectivity By Serial Number

22. Effect On Production Delivery Schedule * 23. Retrofit 24. Estimated Cost/Savings Under Contract:

25. Estimated Net Total Costs: 312000.00 26. Submitting Activity Authorized Signature *

Comments Save Page 1

Close



ELEMENTS OF A CHANGE PACKAGE Preparation & Justification



ECP Pages

Distribution Statement | Page 1 | **Page 2** | Page 3 | Page 4 | Page 5 | Page 6 | Page 7 | Supplemental Information

ECP Number:

Effects On Functional/Allocated Configuration Identification





ELEMENTS OF A CHANGE PACKAGE Preparation & Justification



ECP Pages

Distribution Statement | Page 1 | Page 2 | **Page 3** | Page 4 | Page 5 | Page 6 | Page 7 | Supplemental Information

ECP Number:

Effects On Product Configuration Documentation/Identification, Logistics And Operations

37. Effect On Product Configuration Documentation/Identification Or Contract

38. Effect On Integrated Logistics Support (ILS) Elements *

39. Effect On Operational Employment * 40. Other Considerations *

41. Alternate Solutions 42. Developmental Status * 43. Recommendations For Retrofit

44. Work Hours Per Unit To Install Retrofit Kits:
a. Organization: b. Intermediate: c. Depot: d. Other:

45. Work-Hours To Conduct System Test After Retrofit:

46. This Change Must Be Accomplished:

47. Is Contractor Field Service Engineering Required? ☐ Yes ☒ No

48. Out Of Service Time: 49. Effect Of This ECP And Previously Approved ECPs On Item

50. Date Contractual Authority Needed For: Production ▼ Retrofit ▼



ELEMENTS OF A CHANGE PACKAGE Preparation & Justification - Cost Impact



ECP Pages

Distribution Statement: Page 1 Page 2 Page 3 **Page 4** Page 5 Page 6 Page 7 Supplemental Information

51. Estimated Net Total Cost Impact
(Use Parentheses For Savings)

ECP Number: MI-C0812FR4A1

☐ Scanned
☒ Manual
☐ Enclosure

FACTOR	Non Recurring	Unit	Quantity	Total (Recurring)	Tc
a. Production Costs/Savings					
(1) Configuration Item/CSD					
(2) Factory Test Equipment	25000				
(3) Special Factory Tooling					
(4) Scrap					
(5) Engineering, Eng. Data Revision	125000				
(6) Revision Of Test Procedures					
(7) Qualification of New Items	60000				
(8) Subtotal of Prod Costs/Savings	210000.00				
b. Retrofit Costs					
(1) Engineering Data Revision		25500	4	102000.00	
(2) Prototype Testing					
(3) Kit Proof Testing					
(4) Retrofit Kits For Op. Systems					
(5) Prep Of MWD/TCTD/SC/ALT/TD					

Clear Grid

Comments Save Page 4

Close



ELEMENTS OF A CHANGE PACKAGE Preparation & Justification - Cost Savings



ECP Pages

Distribution Statement | Page 1 | Page 2 | Page 3 | Page 4 | **Page 5** | Page 6 | Page 7 | Supplemental Information

52 Estimated Cost/Savings Summary, Related ECP: (Use Parentheses For Savings) ECP Number: MI-C0812FR4A1

☐ Scanned
☒ Manual
☐ Enclosure

	CAGE Code	ECP Number	Costs/Savings Under Contract
a. Production Costs/Savings			
(1) Subtotal Production Costs/Savings			210000.00
b. Retrofit Costs			
(1) Subtotal Retrofit Costs			102000.00

New Requirements	CAGE Code	Non-Recurring Costs	Unit
(10) Provisioning Documentation			
(11) Oper/Tmr/Tmg Devices/Equip			
(12) Manuals/Spares, Repair Parts (for (11))			
(13) Maintenance/Tmr/Tmg Devices/Equip			

	CAGE Code	ECP Number	Costs/Savings Under Contract
(19) Subtotal ILS Costs/Savings			
d. Other Costs/Savings			

Clear Grids Other Costs

Comments Save Page 5

Close



ELEMENTS OF A CHANGE PACKAGE

Preparation & Justification - Hardware Milestones



ECP Pages

Distribution Statement | Page 1 | Page 2 | Page 3 | Page 4 | Page 5 | **Page 6** | Page 7 | Supplemental Information

ECP Number: MI-C0812FR4A1 53. CAGE Code: 64069

☐ Scanned
☒ Manual
☐ Enclosure

54. Configuration Item Nomenclature: 13029702-202

55. Title Of Change: M2770 - Revise Cables for Preparation Instructions and Tolerances.

56. Date Authorization To Proceed Received By Contractor (YYYYMMDD): Apply Date

S - Starting Delivery P - Progress Point C - Completed Delivery

NO. OF MONTHS ->	JAN	FEB	MAR	APR	MAY	JUN
a. Configuration Item						
(1) Production						
(2) Tech Manuals						
(3) Retrofit						
(4) MWD/TCTO/SC/ALT/TD						
(5) Spares/Repair Parts						
b. Support Equipment						

Download Other Info

Comments Save Page 6

Close





ELEMENTS OF A CHANGE PACKAGE Preparation & Justification - Software Milestones



ECP Pages

Distribution Statement | Page 1 | Page 2 | Page 3 | Page 4 | Page 5 | Page 6 | **Page 7** | Supplemental Information

ECP Number: 57. CAGE Code:

☐ Scanned
☒ Manual
☐ Enclosure

58. Computer Software Item Nomenclature:

59. Title Of Change:

60. Date Authorization To Proceed
Received By Contractor (YYYYMMDD):
S - Starting Delivery P - Progress Point C - Completed Delivery

NO. OF MONTHS ->	JAN	FEB	MAR	APR	MAY	JUN
a. Configuration Item						
(1) Software Engineering						
(2) Software Documentation						
(3) Software Replication						
(4) Software Distribution						
b. Support Equipment						
(1) Software Eng. Environment Upgrade						





MEARS Review Document Repository Active and Inactive Documents



Open Document | Update User Info | Help

Program: Document Type:

Active Documents | Inactive Documents

Document Number	CCB Date	Your Vote	Title
91TESTNORPR00A00	2004/04/17		nor 91 test
MI-C0813FR0A0	2003/03/06		M2770 - Revise Cables for Preparation Instructions an
MI-C0813FR0A0	2003/03/06		M2770 - Revise Cables for Preparation Instructions an
MI-C0814FR0A0	2003/10/15		M2770 - Revise Cables for Preparation Instructions an
NOR91TESTPR00A00	2004/04/17		asdf

Classification: Type: Form:

Open View Status Vote NOR Status/Vote





Evaluation and Coordination of an ECP Change Package via CCB Comments and Votes



MI-C0813FR0A0 - M2770 - Revise Cables for Preparation Instructions and Tolerances. - Microsoft Internet Explorer

Address: https://www1.redstone.army.mil/ww1/NEAR/SEDynamicDocServer/af/standards/review/submitdocnonMI-C0813FR0A0

ECP Main Menu

MI-C0813FR0A0

- Distribution Statement
- **General ECP Information**
- Specifications Affected
- [Documents/Drawings Affected](#)
- [Contract Number and Line Item](#)
- Procuring Contracting Officer
- Configuration Item Nomenclature
- [Name of Part or Lowest Assembly Affected](#)
- [Description of Change](#)
- [Need for Change](#)
- [Extraction Effects/Key by Serial Number](#)
- Retire/Re Information
- Other Systems Affected
- Other Contractors/Activities Affected
- Configuration Items Affected
- Effects on Performance Allocations and Interfaces in System Specifications
- Effects on Employment, ILS, Training, Operational Effectiveness, or Software
- Effects on Configuration Item Specifications
- Developmental Requirements and Status
- Trade-Offs and Alternative Solutions

General ECP Information

ECP Title: [M2770 - Revise Cables for Preparation Instructions and Tolerances](#)

Date Submitted: 2003/02/14

PAN: MI-C0813 DODAAC:

Originator: LTV AEROSPACE AND DEFENSE COMPANY, LTV MISSIL, P.O. BOX 650003, DALLAS, TX 75265-0003

ECP CLASS	J-CODE	PRIORITY	MODEL/TYPE
1	C	U	MODEL
CAGE	SYSTEM	CONFIG TYPE	
64059	TRAINING	-	
ECP NO	TYPE	REVISION	AMENDMENT
MI-C0813	F	R0	A0

Baseline Affected

Total Number of Change Documents Attached to this Document: [N/A](#)

Functional: [N](#) Allocated: [N](#) Product: [Y](#)

☐ Frame Comments ☐ Approved Comments

☐ Summary Comments ☐ RE My Comments

Done



ECP Status & Disposition



MEARS Status

Program: TRAINING Form: ECP: 480/973

Document Number: MI-C0813FR040 Classification: I Type: F

Title: M2770 - Revise Cables for Preparation Instructions and Tolerances.

Milestones	Milestone Dates	Approval Authority
Submittal Date	2003/02/14	
CCB Date	2003/03/06	
Comments Due By Date	2003/03/03	
Approval Authority	Disposition Date	

CCB Members	Name	Submitted Comments	Vote	Consensus In Classification	Opened
<input checked="" type="checkbox"/> approve	PROJECT OFFICE	No			No
<input type="checkbox"/> betatest1	Beta Test	Yes	Approve	No	Yes
<input type="checkbox"/> both	Beth Hurter	Yes			Yes
<input type="checkbox"/> bjwiley	Captain Dixie	No			Yes
<input type="checkbox"/> burdefay	Faye Burdett	No			Yes
<input type="checkbox"/> clarkjs	Cpl Joseph S. Clark	No			No
<input type="checkbox"/> dgafford	Douglas Gafford	No			Yes
<input type="checkbox"/> knapp-s	Sue Knapp	No			Yes
<input type="checkbox"/> testuser	Test User	No			No
<input type="checkbox"/> training1	User	No			No
<input type="checkbox"/> tward	Tara Collier	No			Yes
<input type="checkbox"/> user1	User 1	Yes	Disapprove	No	Yes
<input type="checkbox"/> user10	User 10	Yes	Approve	Yes	Yes
<input type="checkbox"/> user11	user11	Yes	Disapprove	No	Yes

View All Comments View User Comments View User Info Print Close



MEARS Reports - Document Status Report - Microsoft Internet Explorer

Address: https://mears1.redstone.army.mil/mears/reports/rep_doc_status.asp

Document Status Report

Program: TRAINING Doc Status: Active Doc Type: All Disposition: All

	Doc. Number	Title	Class	CCB Date	Document Status	Form Type	Disposition Date	Disposition	Dispositioned By
1	91TESTNORPR00A00	nor 91 test	II	20040417	Active	ECP			
2	elztestnorPR00A00	ttt	II	20040322	Active	ECP			
3	MI-C0812FR0A0	M2770 - Revise Cables for Preparation Instructions and Tolerances.	I	20030306	Active	ECP	2003/02/20	Approved	Captain Dixie
4	MI-C0813FR0A0	M2770 - Revise Cables for Preparation Instructions and Tolerances.	I	20030306	Active	ECP			
5	MI-C0814FR0A0	M2770 - Revise Cables for Preparation Instructions and Tolerances.	I	20031015	Active	ECP			
6	NOR91TESTPR00A00	asdf	II	20040417	Active	ECP			

Done Trusted sites