



# Minutes of the 42nd MMPDS Coordination Meeting

## Held in:

Hyannis, Massachusetts  
August 28 - 31, 2023

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### Compiled by:

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### Prepared for:

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# 42<sup>nd</sup> MMPDS Coordination Meeting

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## Introduction of Attendees

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A list of 42nd Coordination Meeting attendees, indicating the meetings they attended, has been incorporated into this document.

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## Approval of the 42<sup>nd</sup> MMPDS Meeting Minutes

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Per the Foreword of MMPDS-2023, with a few exceptions, items are considered approved if no technical comments are received by Battelle within 30 days after these Final Minutes are circulated. This review period ends on November 30, 2023.

Items 23-25, 23-37, and 23-55 generated significant discussion during the 42<sup>nd</sup> meeting and affect the final content of MMPDS-2024. For these items, attendees have an additional 30 days to review and provide technical comments to Battelle. These items will be considered approved 60 days after these Final Minutes are circulated. This review period ends on December 30, 2023.

# 42<sup>nd</sup> MMPDS Coordination Meeting

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## Vice-Chairman's Remarks - Walter Sippel

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Thanks to everyone who participated in the 42nd MMPDS General Coordination Committee meetings held in Hyannis, MA between August 28 and September 1. The Battelle team did an excellent job of preparing the Agenda, Handout, and meeting arrangements to keep the program moving forward.

These Final Minutes are being sent to registered attendees and are available to Industry and Government Steering Group organizations through the member SharePoint site. As described in the Foreword to MMPDS-2023, the standard review period for Final Minutes is 30 days after posting. If no negative technical comments are received on an item within the review period, the item is formally approved. If negative technical comments are received before the deadline, that item will be held open for discussion at the 43rd MMPDS GCC meeting.

Three items were placed on the 60-Day approval list. Readers have an additional 30 days to review these items. If negative technical comments are received within 60 days after the minutes are circulated the item will be held open for discussion next spring.

Without a doubt the biggest accomplishment at this meeting was the approval of the first edition of Volume II. Eight other items affect the final content of the text (flowcharts, clarifying terms, et.al.) so please check the minutes for those items, which are listed in the Agenda Book, to confirm that Battelle implemented all the changes that were approved.

As of this writing, Battelle and the FAA expect that the 43rd Meeting will take place at the Albuquerque Marriott Pyramid North in Albuquerque, NM the week of March 18 to 21. Based on feedback and recent progress at face-to-face meetings, the meeting will be scaled back to 32 hours from 36. Travel restrictions may require special accommodations, especially for members from outside the US. Battelle is continuing to monitor COVID-19 developments and will work with GSG to announce any necessary changes.

Thanks again for attending the 42nd MMPDS GCC meetings. Your commitment, dedication, and donation of your valuable time to maintain MMPDS is most appreciated. I look forward to seeing everyone in Albuquerque at the 43rd meeting.

Best Regards,  
MMPDS Chairman, Walter Sippel  
Aerospace Engineer, Airframe Section, AIR-622  
Technical Policy Branch, AIR-620



# SUMMARIES

42nd MMPDS Meeting Attendance						August 28th						August 29th		August 30th	August 31st	
Last Name	First Name	Company	Email	Phone Number	Committee Chair, Co-Chair, Vice Chair	ISG	GSG	ISG/GSG	FTG	ASG	MATSSG	ETTG	PSG	GTG	MTG	GCC
Anderegg	David	Defense Logistics Agency	david.anderegg@dla.mil	804-279-1678			x		x			x		x	x	x
Anderson	Neil	The Boeing Company	neil.o.anderson@boeing.com			x			x							
Archibald	Mike	The Boeing Company	michael.g.archibald@boeing.com									x	x	x	x	
Avery	Dustin	US Army	dustin.z.avery.civ@army.mil				x		x			x		x		
Bach	Andreas	Novelis	andreas.bach@novelis.adityabirla.com			x						x		x	x	x
Baker	Andrew	Spirit Aero	j.andrew.baker@spiritaero.com			x			x			x	x	x		
Bakuckas	John	Federal Aviation Administration	john.bakuckas@faa.gov	609-485-4784			x					x		x	x	x
Bassi	Simarpaul	The Boeing Company	simarpaul.s.bassi@boeing.com			x		x	x			x	x	x	x	x
Beckman	Jonathan	Gulfstream Aerospace	beckjon@gmail.com			x			x	x		x		x	x	
Bennett	Jay	NASA	jay.e.bennett@nasa.gov				x					x	x	x	x	x
Bennett	Russell	The Boeing Company	russell.p.bennett@boeing.com											x	x	
Bittner	Peter	Constellium	peter.bittner@constellium.com		MATSSG							x	x	x	x	x
Blackburn	James	Lockheed Martin	james.a.blackburn@lmco.com			x			x	x		x	x	x	x	x
Bray	Gary	Westmoreland	gary.bray@wmtr.com			x						x		x	x	
Choudhury	Fatima	Pratt & Whitney	fatima.choudhury@prattwhitney.com									x		x		
Chung	Pui See	Blue Origin	pchung@blueorigin.com									x			x	
Cordner	Sam	NASA	samuel.m.cordner@nasa.gov		ETTG, CD & M&M		x					x	x	x	x	x
Coronado	Peter	The Boeing Company	peter.a.coronado@boeing.com			x		x						x		
Crill	Matthew	The Boeing Company	matthew.j.crill@boeing.com		ISG (Vice Chair)	x				x		x		x		x
Crisler	Elizabeth	Textron Aviation (Cessna)	ecrisler@txtav.com		C&Q	x						x		x	x	x
Cunha	Mauricio	Embraer	mccunha@embraer.com.br			x			x	x		x		x	x	x
Davis	Joel	Rolls-Royce	joel.davis2@rolls-royce.com			x		x		x	x	x	x	x	x	x
Dux	Tiffany	Howmet Aerospace	tiffany.dux@howmet.com									x		x	x	
Elwell	Abram	The Boeing Company	abram.b.elwell@boeing.com			x			x	x		x		x	x	x
Enoki	Manabu	The University of Tokyo	enoki@rme.mm.t.u-tokyo.ac.jp									x	x			
Fukushima	Akira	Mitsubishi Heavy Industries, Ltd	akira.fukushima.u7@mhi.com							x		x	x			x
Avila, Garcia	Matias	ATI Materials	matias.garcia-avila@atimaterials.com			x						x		x	x	
Giblin	Tinsae	The Boeing Company	tinsae.k.giblin@boeing.com			x		x	x			x	x	x	x	x
Gonzalez	Daila	NASA	daila.gonzalez-1@nasa.gov				x		x			x		x	x	x
Gorelik	Michael	Federal Aviation Administration	michael.gorelik@faa.gov		ETTG, CD		x					x				
Gurrola	Bob	Howmet Aerospace	bob.gurrola@howmet.com			x			x					x		
Hagiwara	Hirokazu	Mitsubishi Heavy Industries, Ltd	hirokazu.hagiwara.dq@mhi.com									x	x			
Hall	Doug	Battelle Memorial Institute	halld@battelle.org		ETTG, DGA	x		x				x	x		x	x
Hall	Gary	Bell Helicopter	gdhall@bellflight.com								x	x		x	x	
Haynes	Kyle	Norsk Titanium	kyle.haynes@norsktitanium.com			x						x		x	x	
Hirsch	Mike	US Air Force	michael.hirsch.3@us.af.mil									x				
Iiyama	KAZUKI	NEDO	iiyamakzk@nedo.go.jp		ASG							x	x			
Johnson	Chloe	Elementum3D	chloe@elementum3d.com									x		x		
Johnson	Dwight	Textron Aviation (Cessna)	djohnson01@txtav.com		ETTG, DGA	x			x	x		x		x	x	
Jones	Marshall	US Navy	marshall.t.jones.civ@us.navy.mil				x					x			x	x
Kawagishi	Kyoko	National Institute for Materials Science	KAWAGISHI.Kyoko@nims.go.jp									x				
Konishi	Hiroyuki	NEDO	konishihry@nedo.go.jp									x	x			
Krile	Bob	Battelle Memorial Institute	krile@battelle.org		GTG	x						x		x		
Lamas	Jose Eduardo	Embraer SA	jose.lamas@embraer.com.br			x		x	x			x	x	x	x	x
Lamb	Justin	Universal Alloy	justin.lamb@universalalloy.com			x						x		x	x	x
Lammatao	Joel	L3Harris	joel.lammatao@rocket.com									x	x	x	x	x
Larsen	Hilde Løken	Norsk Titanium	hilde.loken.larsen@norsktitanium.no			x						x		x	x	
Li	Shengyen	NIST	shengyen.li@nist.gov									x	x	x		
Liou	Richard	Collins Aerospace	richard.liou@collins.com									x	x	x	x	x
Liu	George	US Army	george.g.liu.civ@army.mil				x					x		x	x	x
Maciejewski	Kimberly	Arconic	Kimberly.Maciejewski@arconic.com			x						x		x	x	x
Mantione	John	ATI Materials	john.mantione@atimaterials.com			x						x	x	x	x	
Martin	Todd	US Army	todd.e.martin.civ@army.mil				x					x		x	x	x

42nd MMPDS Meeting Attendance						August 28th						August 29th		August 30th	August 31st	
Last Name	First Name	Company	Email	Phone Number	Committee Chair, Co-Chair, Vice Chair	ISG	GSG	ISG/GSG	FTG	ASG	MATSSG	ETTG	PSG	GTG	MTG	GCC
McGill	Matthew	Parker	matthew.mcgill@parker.com			x		x	x			x		x	x	
Miyake	Kazumi	NEDO	liyamakzk@nedo.go.jp			x				x	x	x	x	x	x	x
Nagao	Kazuki	Honda R&D Americas, Inc.	knagao@na.honda.com			x			x			x	x	x	x	x
Niedzinski	Michael	Constellium	michael.niedzinski@constellium.com												x	x
Norimatsu	Koichi	IHI Corporation	norimatsu7034@ihi-g.com			x			x			x	x	x	x	x
Ofsthun	Mark	Honda Aircraft Company	mark_ofsthun@haci.honda.com			x		x		x	x	x			x	x
Osada	Toshio	National Institute for Materials Science	OSADA.Toshio@nims.go.jp									x	x			
Oshino	Hironobu	IHI Corporation	oshino9242@ihi-g.com			x				x		x	x	x		
Phillips	Brandon	US Army	brandon.j.phillips24.civ@army.mil				x		x			x			x	
Pilchak	Adam	Raytheon	adam.pilchak@prattwhitney.com									x		x		
Pujar	Vijay	Collins Aerospace	vijay.pujar@collins.com									x				
Raposo	Humberto	Carpenter Technology	hraposo@cartech.com									x				
Reakes	Clay	Battelle Memorial Institute	reakes@battelle.org			x			x			x	x	x	x	x
Roepke	Caleb	Blue Origin	croepke@blueorigin.com									x	x	x	x	x
Rubadue	Jana	Battelle Memorial Institute	rubadue@battelle.org			x		x	x			x		x	x	
Scalf	Cyndee	Battelle Memorial Institute	scalf@battelle.org			x										
Scheuring	Jason	Kaiser Aluminum	jason.scheuring@kaiseraluminum.com											x	x	x
Shannon	Carinne	Battelle Memorial Institute	shannon@battelle.org		MTG	x				x	x	x	x	x	x	x
Sheffels	Christopher	Honda Aircraft Company	christopher_sheffels@haci.honda.com									x	x	x	x	x
Sippel	Walter	Federal Aviation Administration	walter.sippel@faa.gov		GSG (Chair)							x		x	x	x
Smeltzer	Abby	Blue Origin	asmeltzer@blueorigin.com									x	x	x	x	
Smith	Ryan	GE Additive	ryan.smith@ge.com									x	x			
Snyder	Donald	Bell Helicopter	dsnyder2@bellflight.com									x		x		
Snyder	Matthew	Battelle Memorial Institute	snydermd@battelle.org			x			x			x	x	x	x	x
Sodouri	Pedrum	Norsk Titanium	pedrum.sodouri@nikon.com		ISG (Chair), M&M	x						x				
Stamp	Robin	Velo3D	robin.stamp@velo3d.com									x				
Steele	Leslie	Collins Aerospace	Leslie.Steele@collins.com		PSG	x			x	x		x	x		x	x
Stepanova	Mariia	Norsk Titanium	mariia.stepanova@norsktitanium.com			x						x		x	x	x
Steevens	Andrew	The Boeing Company	andrew.j.steevens@boeing.com			x		x		x		x		x	x	x
Stonaker	Kevin	Federal Aviation Administration	kevin.stonaker@faa.gov					x				x				
Thomas	Logan	Spirit AeroSystems	logan.b.thomas@spiraero.com			x		x	x			x	x	x	x	x
Torgerson	Tyler	Bell Helicopter	ttorgerson@bellflight.com			x		x				x			x	
Toscano	Luis	Embraer SA	luis.toscano@embraer.com.br						x					x		
Tummons	David	The Boeing Company	david.tummons@boeing.com									x		x	x	x
Ventura	Kyle	Northrop Grumman	kyle.ventura@ngc.com			x										
Vogel	Bret	Textron Aviation (Cessna)	bvogel@txtav.com		WWG							x		x	x	
Watkins	Sarah	Raytheon	sarah.watkins@prattwhitney.com									x		x	x	
Wertz	Katelun	US Air Force	katelun.wertz@us.af.mil				x					x		x	x	x
Wheelock	Paul	Rolls-Royce	paul.wheelock@rolls-royce.com		PSG	x			x	x		x	x	x		
White	Will	Battelle Memorial Institute	whitew@battelle.org						x			x		x		
Yohannes	Aklilu	Federal Aviation Administration	aklilu.yohannes@faa.gov		C&Q		x					x	x	x	x	x

OBSERVERS

## 42nd MMPDS Coordination Meeting

### New Item Numbers Assigned in 2023

23-01	MMPDS-2023, Volume II
23-02	Update Table for 7140-T7451 (AMS4401)
23-03	Order of Shear Values When Test Orientations are Shown
23-04	V2, 10.3 Overview of Qualification
23-05	Corrections to 7075-T6X Bare and Clad Plate
23-06	Corrections to 7075-T7351 Plate per AMS4078
23-07	Corrections to 7075-T73XX Extrusions per AMS4617
23-08	Corrections to 7075-T76XX Extrusions per AMS4317
23-09	Stabilization of AMS6925 and AMS6926 for Ti-13V-11Cr-3Al Bar
23-10	Revision of Section 9.5 Flowcharts
23-11	Section 10.6 Consensus Standards
23-12	V2 Column Reference Clean-Up
23-13	Revision of Figures for Legacy Alloys
23-14	Revision of Ti-6Al-4V Die Forging Property Table
23-15	Stabilization of AMS5659/H900 and H925 for 15Cr - 4.5Ni - 0.30Cb (Nb) Bars, Wire, Forgings, Rings, and Extrusions
23-16	2050 SCC Test Data
23-17	Clarification of Legacy Guidelines for Derived Properties in V1 & V2
23-18	QPL for SAE AMS Metals
23-19	Review of 9.7 for Volume II
23-20	Section 9.8 & 9.9 for Volume II
23-21	Correction to 7075 Bar Diameter Table 3.7.10.0(d)
23-22	6061-RAM2 per AMS 7054



## 42nd MMPDS Coordination Meeting

### New Item Numbers Assigned in 2023

23-23	Analysis of AM data for Material Specification
23-24	Required Content to Publish Volume II
23-25	Additional Content Required to Publish Material Allowable Entries in Volume II
23-26	Clarification of MMPDS Voting Procedures
23-27	Modification of Sunset Procedures for Swaged Collar / Threaded Fasteners
23-28	Modification of Sunset Procedures for Solid Rivets
23-29	Modification of Sunset Procedures for Blind Fasteners
23-30	Minimum Spec Content Requirements for Fasteners (like 9.2.2)
23-31	Confirm SCC Resistance Caution for 2024-T42, T62 Plate
23-32	Clarify Terms "reference" and "derived" in Indirect Method
23-33	FCP Variable Load Analysis Methods
23-34	Role and Documentation of Specimen Location Used in Indirect Analysis
23-35	Guideline to Reduce Compression, Shear, and Bearing
23-36	Ch. 8 A-Basis Static Allowables Requirement for Fastener Fatigue Figures
23-37	Changes to Section 9.9.5.1 Supporting Gamma Regression
23-38	Mechanical Property Table Presentation of Test Orientations
23-39	MMPDS Bylaws Glossary
23-40	Stabilization of AMS 4320 for 7149 Aluminum Forging

## 42nd MMPDS Coordination Meeting

### New Item Numbers Assigned in 2023

23-41	Fastener Tables Dry/Wet Footnote
23-42	Upgrade and Expansion of CP-70 Ti per AMS 4921
23-43	Correction to 7349-T76511 Extrusion Mechanical Properties
23-44	Derived Properties to Include S-Basis
23-45	Update to Table 9.10.6
23-46	NIMS/NEDO Intro Presentation
23-47	Clarification of Total Elongation in 1.4.4.8
23-48	Ti-6Al-4V per AMS 7004/7005
23-49	S-Basis for Volume II
23-50	Revision to 7475-T7351 AMS4202 Derived Properties
23-51	Thickness Expansion for Haynes 282 Alloy
23-52	Clarification of Typical Yield Joint Curve
23-53	Fatigue for Ti-6-2-4-2
23-54	Review of Fracture Toughness Table
23-55	Definitions in Volume I
23-56	Use of Columns in Volume II
23-57	MMPDS Bylaws: Clarify GCC roles and responsibilities.
23-58	Update Subscripts in Indirect Equation

## 42nd MMPDS Coordination Meeting

### New Item Numbers Assigned in 2023

23-59	Scenarios for Upgrading from S-Basis to C/D-Basis
23-60	Definition of S-Basis for Volume I
23-61	V2WG Coordination & Direction

## 42nd MMPDS Coordination Meeting Final Minutes

### CLOSED AGENDA ITEMS

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
15-19	GTG-F		1	9	Verification of Secondary Modulus Methods for Fasteners	Status	Closed w no Action	B. Gurrola gave an update. Still needs data to test against the method. Agreed to close since no data is available.
17-56	MTG		1	3	FCG Analysis for 2397-T87 Plate	Agenda/ Handout	Approved and Closed	C. Reakes presented this item. S. Cordner doesn't like fits and would prefer another method. Discussed using NASGRO. Selected figure (a). Item 23-33 investigates other ways to determine equation.
20-03	GTG		1	9	MMPDS Review & Approval Process	Agenda/ Handout	Approved w Changes and Closed	D. Hall presented this item. Similar to Item 20-04 for V2. #5 remove "the during".
20-04	GTG	ETTG	2		V2: MMPDS Review & Approval Process	Agenda/ Handout	Approved w Changes and Closed	D. Hall presented this item. Will remove "the during" from #5
20-29	GTG		1, 2	9	Analysis of Bearing and Shear Properties with the new Indirect Method	Agenda	Closed w no Action	M. Snyder presented this item. ASG does not want to include this method, in part because these properties are not lot release properties. Concerned with low degree of correlation, which will be further assessed in a new item as sufficient data becomes available.
21-10	FTG		1	8	Fatigue of PH13-8Mo Bolts	Agenda	Approved w Changes and Closed	C. Reakes presented this item to add new section in Chapter 8. in Fig 8.1.5.3(a) spell out CS (countersunk) and change "straight..." to "flat washer under the nut". Under Surface Condition - Add "after heat treatment". See other changes under Surface condition.

## 42nd MMPDS Coordination Meeting Final Minutes

### CLOSED AGENDA ITEMS

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
21-45	MTG		1	5	Analysis of FCGR and Load Control Fatigue data for Ti 6-2-4-2 per AMS4919	Agenda	Approved w Changes and Closed	C. Reakes presented this item. Approve room temp. Fig 5.3.3.1.9(a) environment - change "Moist" to "Lab" Air and keep humidity. Approve high temp, (b). Load control fatigue, Fig 5.3.3.1.8(a). Discussed possible outlier (though no reason could be found to ignore) and fitting equations in tool. Not a good fit to data. Continue this figure. Fig (b) can be approved. New Item 23-53 For Figure 5.3.3.1.8(a) to investigate better curve fit methods including BOX-COX.
22-05	GTG		1	5	Revise Fracture Toughness Table to Include Specification	Agenda	Approved w Changes and Closed	C. Shannon presented this item. Question on keeping Kic properties when no mechanical property tables exist. Delete the 2219-T851 Forging row unless the correct temper or product form can be identified. 2219-T852 Forging (unknown ) may be Hand forging AMS 4144. Open new item 23-54 to confirm the list with no tables and to look further at "unknown".
22-45	GTG-F	FTG	1	1	Ch. 1, Ch. 8, and Ch. 9 Changes Supporting Fatigue of Bolts	Agenda	Approved w Changes and Closed	C. Reakes presented this item. In the option for paragraph in Section 1.12.4 option B selected. The paragraph following the options was discussed. No conflict on first sentence. Delete other 2 sentences at this time. GTG approved.
22-48	GTG	ETTG	2	1	Revision of Shear and Bearing Sections in V2 Chapter 1 (1.4.6 and 1.4.7)	Agenda	Closed w no Action	D. Hall presented this item. No changes were proposed.
22-51	GTG	ETTG	2	1	Review of Section 1.6 Validation in V2	Status	Closed w no Action	D. Hall gave a status report. No change is needed based on Item 23-01

## 42nd MMPDS Coordination Meeting Final Minutes

### CLOSED AGENDA ITEMS

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
22-54	GTG		1	9	Revision of Shear Modulus Sections in Chapter 9 for V1 and V2	Agenda	Approved and Closed	C. Shannon presented this item. Only affects V1, since changes were already made in V2.
23-01	GTG	ETTG	2		MMPDS-2024, Volume II	Agenda/ Handout	Approved w Changes and Closed	D. Hall led discussion of this item. The GSG is to confirm language on cover. Changes to TOC identifying 9.7, 9.8, 9.9 "reserved for future use". Changes to Section 1.4.1.1 and 9.1.7.1 definitions to point to appropriate sections. Open new 60 day Item 23-55 for Vol 1 to keep definitions in both Vol the same. Section 9.1.6 editorially remove duplicate sentence in 3rd paragraph. Abram will send additional editorial comments. Others noted in chat. Section 9.3 is inconsistent with Item 21-20. Change last bullet to "Photomicrographs of microstructure and flaw state will be required for each build." Vote on approving with changes. For 20+ (over 2/3 of room). Include Handout 23-25 with first release of V2 (see Item 23-25). Section 1.1.2 2nd paragraph should be "C/D/S-Basis" instead of "C/D-Basis". Add updated S-Basis definition language to the definitions in 1.4.1.1, 9.1.7.1, and Appendix A.
23-10	GTG		1, 2	9	Revision of Section 9.5 Flow Charts	Agenda	Approved and Closed	M. Snyder presented this item with revised figures for V1 and V2.
23-12	GTG	ETTG	2	1	V2 Column Reference Clean-Up	Agenda	Approved w Changes and Closed	Accepted proposals #1 and #2. For proposal #3, point to 1.6.2 of V1. "Failures of this type are discussed in 1.6 of V1". Open new item 23-56 for Columns in V2.

## 42nd MMPDS Coordination Meeting Final Minutes

### CLOSED AGENDA ITEMS

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-18	MTG		1		QPL for SAE AMS Metals	Status	Closed w no Action	K. Sabo, SAE AMS Metals Committee Chair, gave a presentation (included in minutes). Currently there is no consensus on going forward with the QPL. Especially producers were against it. There was agreement that purchasing to AMS alone is insufficient for protecting properties. Large OEM have own QPL and requirements. Ken noted that AMS can create QPL, but requires consensus. Jay would like additional requirements added to AMS reporting. D. Hall has requested permission to share the White Papers with producers. NEW ITEM to add to reporting in AMS specs.
23-23	GTG	ETTG	2	9	Analysis of AM data for Material Specification	Agenda/ Handout	Approved and Closed	D. Hall presented this item. Discussed reasons for the decision to pool additive data for new specifications when sponsored by multiple suppliers.
23-25	GTG	ETTG	2	multi	Additional Content Required to Publish Material Allowable Entries in Volume II	Handout	60 Day Approval	D. Hall presented this Handout item. This item will be inserted in MMPDS V2 initial release. Battelle will work with the GSG on final wording. Item was approved, but since was a Handout, 60 day approval is needed.
23-31	MTG	ASG, MATSSG	1	3	Confirm SCC Resistance Caution for 2024-T42, T62 Plate	Agenda	Closed w no Action	C. Shannon presented this item. The caution should remain on T42 and T62.
23-32	GTG		1, 2	9	Clarify Terms "reference" and "derived" in Indirect Method	Agenda	Approved w Changes and Closed	M. Snyder presented this item. Modify Reference definition (see pdf). Modify Derived definition to remove "new" and add "legacy" before "reduced ratio". Open New item 23-58 to change "baseline" to "reference" and modify subscripts in indirect method equations.

## 42nd MMPDS Coordination Meeting Final Minutes

### CLOSED AGENDA ITEMS

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-35	GTG	ASG	1, 2	9	Guideline to Reduce Compression, Shear, and Bearing	Agenda	Approved w Changes and Closed	C. Shannon presented this item with changes to V1 and V2. Changes to 9.5.7.4(4).
23-37	GTG			9	Changes to Section 9.9.5.1 Supporting Gamma Regression	Agenda	60 Day Approval	M. Snyder presented this item for V1. 60 Day approval to add a statement about what to do if not combinable - add more mechanical tests.
23-39	GTG				MMPDS Bylaws Glossary	Agenda	Approved w Changes and Closed	D. Hall presented this item. Change "Agenda" to "Agenda Book". "The agenda book is compiled by the Secretariat.." Handout Item - add 3rd -or items added after the agenda was circulated. Add Handouts cannot be approved unless using a 60Day approval. This is usually used in a fall meeting for items that are needed for next version and is always 60day term (see pdf for wording). Handout - change to "The Handout Book is compiled..." 60Day - add "This might include items in the Handout Book."
23-40	MTG		1	3	Stabilization of AMS 4320 for 7149 Aluminum Forging	Agenda	Approved and Closed	C. Shannon presented this item.
23-41	GTG-F	FTG		8	Fastener Tables Dry/Wet Footnote	Agenda	Closed w no Action	C. Reakes presented this item for discussion. Determined that no additional information is needed in Chapter 8.
23-45	GTG		1, 2	9	Update to Table 9.10.6	Agenda	Approved and Closed	M. Snyder presented this item.



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### CLOSED AGENDA ITEMS

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-47	GTG		1, 2	1	Clarification of Total Elongation in 1.4.4.8	Agenda	Approved and Closed	D. Hall presented this item in ETTG. Battelle will look into current data submission guidelines to determine if a new item is needed to require elongation after fracture.
23-49	GTG	ETT	2	9	Definition of S-Basis for Volume II	Agenda	Approved w Changes and Closed	D. Hall presented this item.
23-50	MTG		1	3	Revision to 7475-T7351 AMS4202 Derived Properties	Agenda	Approved and Closed	C. Shannon presented this item. There were disagreements on changing the value. Vote 3 nay to 8+ to revise.
23-51	MTG		1	6	Thickness Expansion for Haynes 282 Alloy	Agenda	Approved and Closed	C. Shannon presented this item.
23-55	GTG		1		Definitions in Volume I		60 Day Approval	This new item is from Item 23-01 to keep the definitions in Volume I in agreement with the approved definitions in Volume II.

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***SORTED BY ITEM NUMBER***

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
04-21	FTG		1	8	Fastener Tables of Sunset Review Interest	On Hold	Not Covered	This item is on hold, pending items 23-27, 23-28, and 23-29
08-23	FTG		1	8	Sunset Review of Table 8.1.3.2.2(c), NAS1921C	On Hold	Not Covered	This item is on hold, pending items 23-27, 23-28, and 23-29
09-13	FTG		1	8	Sunset Review of Table 8.1.3.2.3(a), MS21140	On Hold	Not Covered	This item is on hold, pending items 23-27, 23-28, and 23-29
11-05	MTG		1	1	AMS Coordination	Status	Continue	C. Shannon will attend the upcoming AMS Metals meetings for both conventional and AM materials. The minutes will provide summaries of relevant topics discussed at each.
11-38	FTG		1	8	Sunset Review of Flush Head, Mechanical Lock Spindle Blind Rivet Table 8.1.3.2.2(e) NAS 1921 M	On Hold	Not Covered	This item is on hold, pending items 23-27, 23-28, and 23-29
12-89	MTG	PSG	1, 2		Target Materials for Propulsion Applications	Status	Continue	P. Wheelock gave a status update that included a summary table with materials of interest. Battelle will compare this list to IHI list of materials they are interested in.
13-34	MTG		1	5	Addition of AMS 4919 Ti-6-2-4-2 Plate Properties	Status	Continue	Not covered due to time constraints. Please let Battelle know if you have data to contribute.
13-50	GTG		1, 2	9	ASTM Coordination	Status	Continue	D. Hall gave a status update. The ASTM is balloting shear test orientations. Battelle will participate in fatigue evaluation
14-28	FTG		1	8	Sunset Review of Table 8.1.4.2(i), LGPL2SC-V Pin, 3SLC-C Collar in Clad 7075-T6	On Hold	Not Covered	This item is on hold, pending items 23-27, 23-28, and 23-29

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
15-13	MTG		1	multi	Clarification of Shear Orientation for Legacy Alloys	Agenda	Continue	C. Shannon presented this item. For proposal 6, Ti-6-4, suggested revise footnote wording and identify test orientations for sheet product. Also, revise bearing to test orientations (flatwise). (Product form not thick enough to do edgewise.) Though may also be a type of punch shear. Decision to continue investigating #6,7,8. Will work with D. Tummins, A. Elwell, G. Bray, M. Niedzinski, M. Crill, and K. Maciejewski to resolve others. Approve changes to 1-5.
15-19	GTG-F		1	9	Verification of Secondary Modulus Methods for Fasteners	Status	Closed w no Action	B. Gurrola gave an update. Still needs data to test against the method. Agreed to close since no data is available.
15-38	GTG		1	9	Reevaluation of Degrees of Freedom Calculation for Regression with Effect of Temperature	On Hold	Not Covered	This item is on hold pending revision of the effect of temperature method.
16-12	FTG		1	8	Identifying Basis of Fastener Shear Strength on Remaining Tables	Status	Continue	Data from Cherry was single lap. No other data submitted. Battelle does not have the original data and probably cannot get this old data. Want to get current data to establish a basis. Bob has truncated data (not to failure and only meets spec). Needs to request all lot release data even if not to failure.
16-13	FTG		1	8	Corrections to Table 8.1.3.2.2(c) NAS 1921C	On Hold	Not Covered	This item is on hold, pending items 23-27, 23-28, and 23-29
16-23	GTG		1	6	Re-evaluate Guidelines for Effect of Temperature Curves	Status	Continue	D. Hall gave an update. Battelle is working on this item. Discussed in PSG.

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
17-23	GTG	MTG	1	9	Legacy Alloy Review Strategy – Near Term	Status	Continue	No further progress has been made at this time. Battelle will draft an item to add a reporting requirement to future public specs for producers to self-identify.
17-45	MTG		1	3	Effect of Temperature Curves for 2395-T84 Extrusion	On Hold	Not Covered	This item is on hold pending revision of the effect of temperature method.
17-52	GTG	FatWg	1	9	Review Section 9.6.1 - Load and Strain Control Fatigue	Status	Continue	Will be discussed in FatWG. C. Reakes, Battelle, is working on this item.
17-56	MTG		1	3	FCG Analysis for 2397-T87 Plate	Agenda/ Handout	Approved and Closed	C. Reakes presented this item. S. Cordner doesn't like fits and would prefer another method. Discussed using NASGRO. Selected figure (a). Item 23-33 investigates other ways to determine equation.
17-61	GTG	FatWg	1	9	Revising R-curve Requirement in Table 9.2.4	Status	Continue	Not covered due to time constraints. No update at this time.
17-62	GTG	FatWg	1	9	Revising Fatigue Requirement in Table 9.2.4	Status	Continue	Discussed in FatWG. Will have a Handout at Spring meeting.
17-63	GTG	FatWg	1	9	Use of Box-Cox Transformation in the Fitting of Fatigue Data	Status	Continue	B. Young, consultant, gave a status update, showing draft tool. Tool runs Box Cox, Walker, (and others?)
19-19	GTG	FatWg	1	9	Consideration of a new Equivalent Stress model for Load-Controlled Fatigue	Status	Continue	Not covered due to time constraints. No update at this time.
19-25	GTG	ASG	1	9	Guidelines for Derived Properties for Legacy Alloys	On Hold	Not Covered	On hold pending resolution of Item 17-23 Legacy review. Decisions will be made on a case-by-case basis.
19-34	GTG		1	9	Waive Requirement for Bearing Properties When Appropriate	Status	Continue	No progress was made on this item.
19-37	GTG-F	FTG	1	9	Establish a Guideline for Reinserting Chapter 8 Tables. (Solid Fasteners)	On Hold	Not Covered	This item is on hold, pending items 23-27, 23-28, and 23-29

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
19-38	ETTG		2		Process Intensive Materials & Technologies SDO Coordination	Status	Continue	<p>D. Hall gave a status report.</p> <p>Battelle attended Spring SAE AM Metals and AM committee meetings, will attend Fall meetings.</p> <p>K. Stonaker (FAA) gave a presentation at Aeromat 2023: MMPDS Volume 2 Framework for Material Allowables of AM Metals</p> <p>D. Hall will attend the FAA-EASA AM Workshop in September as an invited speaker.</p> <p>D. Hall attended the America Makes MMX. Investigating joining. MMPDS mentioned in recent project calls.</p> <p>ASTM is looking at fatigue methods. B. Krile and D. Hall will review.</p> <p>M. Gorelik noted that there is an active AIA AM working group.</p> <p>M. Hirsch (USAF) is involved with AWS and asked if we should be engaged. K. Wurtz will keep us up to date.</p> <p>Would like to know if something of relevance is going on, particularly process control.</p> <p>D. Hall attended workshops organized by AMerica Makes and NIST on topics related to data management and process qualification for AM.</p>
20-03	GTG		1	9	MMPDS Review & Approval Process	Agenda/ Handout	Approved w Changes and Closed	<p>D. Hall presented this item. Similar to Item 20-04 for V2. #5 remove "the during".</p>

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
20-04	GTG	ETTG	2		V2: MMPDS Review & Approval Process	Agenda/ Handout	Approved w Changes and Closed	D. Hall presented this item. Will remove "the during" from #5
20-10	MTG		1	3	Upgrade of Secondary Properties of 7075-T76511 Aluminum Alloy Extrusions	Agenda	Continue	C. Shannon presented this item. Waiting on data. Analysis will be done using reduced ratio method, unless there is sufficient data for new indirect. Universal may have more data. Kaiser will do testing on their material.
20-13	ETTG		2		CMH-17/MMPDS Coordination & Collaboration	Status	Continue	D. Hall gave a status update. New CMH program director, Michelle Man. D. Hall and R. Andrulonis (NIAR) co-chaired the Final Material Properties working group for the ANSI AMSC Roadmap 3.0. The roadmap is available for download. Well aligned on material allowable, influence factor, design values in the two books.
20-16	GTG	ETTG	2		MMPDS & Additive Metals - Program Plan	Handout	Continue	D. Hall presented this Handout.
20-29	GTG		1, 2	9	Analysis of Bearing and Shear Properties with the new Indirect Method	Agenda	Closed w no Action	M. Snyder presented this item. ASG does not want to include this method, in part because these properties are not lot release properties. Concerned with low degree of correlation, which will be further assessed in a new item as sufficient data becomes available.
20-30	GTG	ETTG	2	9	Components of Variance Analysis of AM, Cast, & Wrought Ti 6-4	Status	Continue	M. Snyder presented status. We plan to present results at next meeting.

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
20-35	MTG		1	multi	Alloys Requested for Analysis	Status	Continue	Please refer to list sent out in 41st MMPDS Minutes.
20-36	MTG		1	multi	Request for Secondary Property Data	Status	Continue	Please refer to list sent out in 41st MMPDS Minutes.
21-02	GTG	ETTG	2	9	Section 9.5 & 9.6 for Volume II	Status	Continue	D. Hall gave a status report. Let us know if you are interested in working on re-organizing these sections in both volumes. The goal is to have these be identical in both volumes, covering statistical theory.
21-10	FTG		1	8	Fatigue of PH13-8Mo Bolts	Agenda	Approved w Changes and Closed	C. Reakes presented this item to add new section in Chapter 8. in Fig 8.1.5.3(a) spell out CS (countersunk) and change "straight..." to "flat washer under the nut". Under Surface Condition - Add "after heat treatment". See other changes under Surface condition.
21-18	ETTG		2		Updates from V2WG Sub-teams	Status	Continue	Each V2 subteam provided updates. Please let Battelle know if you are interested in contributing.
21-20	GTG	ETTG	2	9	Microstructural Submittal Requirements	Handout	Continue	M&M group is asking for comments on this Handout. It will be presented in Spring as an agenda item for approval. See Item 23-01 for bullet in 9.3.5. Section 9.2.1.6 comment on etchant to be used for micrographs. Battelle will work with item to determine exact location of text. This item must be completed to add data to V2
21-40	GTG	ETTG	2		Impact of Powder Re-use on AMS7000 625 LPBF	Status	Continue	M. Snyder gave an update. The plan is to present agenda at next meeting.

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
21-42	MTG	PSG	1	6	Update for Haynes 230 Strength vs. Temperature curves	Status	Continue	D. Hall provided a status update in PSG on the investigation he's made into the effect of temperature method using the Haynes 230 data. If you have data to contribute to help evaluate the effect of temperature method, please let Battelle know.
21-45	MTG		1	5	Analysis of FCGR and Load Control Fatigue data for Ti 6-2-4-2 per AMS4919	Agenda	Approved w Changes and Closed	C. Reakes presented this item. Approve room temp. Fig 5.3.3.1.9(a) environment - change "Moist" to "Lab" Air and keep humidity. Approve high temp, (b). Load control fatigue, Fig 5.3.3.1.8(a). Discussed possible outlier (though no reason could be found to ignore) and fitting equations in tool. Not a good fit to data. Continue this figure. Fig (b) can be approved. New Item 23-53 For Figure 5.3.3.1.8(a) to investigate better curve fit methods including BOX-COX.
21-46	ETTG		2	10	MMPDS Vol 2, Certification & Qualification "Further Showing"	Handout	Continue	A. Yohannes and W. Sippel presented this Handout. There were questions on TSO. No plan to discuss TSO in this item. May need further defining. Please send comments to Q&C co-chairs. This item must be completed to add data to V2.
21-48	GTG	MTG	1	9	Periodic Testing Options for Specifications	Status	Continue	C. Shannon gave an update. This will be discussed more in Item 23-18.
21-52	MTG	ASG	1	3	Removal of 7075-T6xxx Design Allowables for Thick Sections	On Hold	Not Covered	Per ASG request, the approval of this item is on hold to allow for updates to be made to affected tables for publication in MMPDS-2024. This item will be proposed again for approval at the 43rd MMPDS meeting.



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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
21-53	ETTG		2	6	Analysis of 718 Laser Powder Bed Fusion per AMS7038	Status	Continue	R. Stamp, Velo 3D, gave an update. Plan is to have multiple producers to establish the spec. minimum. Velo 3D will submit data for MMPDS for the other needed properties. Ideally, we would like to have data from other suppliers.
22-03	FTG		1	8	Fasteners Requested for Analysis	Status	Continue	No additional fastener/sheet combinations requested for analysis.
22-05	GTG		1	5	Revise Fracture Toughness Table to Include Specification	Agenda	Approved w Changes and Closed	C. Shannon presented this item. Question on keeping Kic properties when no mechanical property tables exist. Delete the 2219-T851 Forging row unless the correct temper or product form can be identified. 2219-T852 Forging (unknown ) may be Hand forging AMS 4144. Open new item 23-54 to confirm the list with no tables and to look further at "unknown".
22-13	GTG	ETTG	2	10	V2, 10.8 Considerations for the Development of Design Values	Handout	Continue	A. Yohannes presented this item. An Agenda will be presented in the Spring meeting. This item must be completed to add data to MMPDS V2.
22-15	FTG		1	8	Test plan for Fastener MS20426AD in 2024-T42	On Hold	Not Covered	On Hold pending funding for testing. Question if limited data will be helpful.
22-18	GTG		2	9	Section 9.2.1.5: Stress-Strain Properties	Status	Continue	C. Shannon gave a status report. This item will also include an analysis section. Feedback is welcome.
22-33	GTG	ETTG	2	9	Microstructure Information Accessibility for MMPDS, V2	Status	Continue	D. Hall gave a status report. Waiting for decisions prior to talking to licensees. Battelle cannot host a website itself.
22-38	GTG-F	FTG	1	9	Guidelines for Re-Inserting Chapter 8 Tables (Blind Fasteners)	On Hold	Not Covered	This item is on hold, pending item 19-37

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
22-45	GTG-F	FTG	1	1	Ch. 1, Ch. 8, and Ch. 9 Changes Supporting Fatigue of Bolts	Agenda	Approved w Changes and Closed	C. Reakes presented this item. In the option for paragraph in Section 1.12.4 option B selected. The paragraph following the options was discussed. No conflict on first sentence. Delete other 2 sentences at this time. GTG approved.
22-46	MTG		1	3	Update Stress Corrosion Data for Tables in 3.1.2	Status	Continue	M. Niedzinski, Constellium, gave a presentation which is included in the final minutes. Material shows an improved rating. If anyone else has 2014-T651 data or similar temper/product forms, please let Battelle know. There is also an interest in 2014-T6 forgings (Howmet & Weber).
22-48	GTG	ETT	2	1	Revision of Shear and Bearing Sections in V2 Chapter 1 (1.4.6 and 1.4.7)	Agenda	Closed w no Action	D. Hall presented this item. No changes were proposed.
22-51	GTG	ETT	2	1	Review of Section 1.6 Validation in V2	Status	Closed w no Action	D. Hall gave a status report. No change is needed based on Item 23-01
22-53	GTG	MTG	1	9	Review of Table 9.2.4.1	Status	Continue	D. Hall gave a status report. There are references to this table, which was removed. (p 9-23, 9-25 referred). Need to make sure references are correct. May want to re-insert some of the footnotes from this table.
22-54	GTG		1	9	Revision of Shear Modulus Sections in Chapter 9 for V1 and V2	Agenda	Approved and Closed	C. Shannon presented this item. Only affects V1, since changes were already made in V2.

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***SORTED BY ITEM NUMBER***

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-01	GTG	ETTG	2		MMPDS-2024, Volume II	Agenda/ Handout	Approved w Changes and Closed	D. Hall led discussion of this item. The GSG is to confirm language on cover. Changes to TOC identifying 9.7, 9.8, 9.9 "reserved for future use". Changes to Section 1.4.1.1 and 9.1.7.1 definitions to point to appropriate sections. Open new 60 day Item 23-55 for Vol 1 to keep definitions in both Vol the same. Section 9.1.6 editorially remove duplicate sentence in 3rd paragraph. Abram will send additional editorial comments. Others noted in chat. Section 9.3 is inconsistent with Item 21-20. Change last bullet to "Photomicrographs of microstructure and flaw state will be required for each build." Vote on approving with changes. For 20+ (over 2/3 of room). Include Handout 23-25 with first release of V2 (see Item 23-25). Section 1.1.2 2nd paragraph should be "C/D/S-Basis" instead of "C/D-Basis". Add updated S-Basis definition language to the definitions in 1.4.1.1, 9.1.7.1, and Appendix A.
23-04	GTG	ETTG	2	10	V2, 10.3 Overview of Qualification	Status	Continue	This is on hold.
23-10	GTG		1, 2	9	Revision of Section 9.5 Flow Charts	Agenda	Approved and Closed	M. Snyder presented this item with revised figures for V1 and V2.
23-11	GTG	ETTG	2	10	Section 10.6 Consensus Standards	Status	Continue	The C&Q team is continuing work on this topic.
23-12	GTG	ETTG	2	1	V2 Column Reference Clean-Up	Agenda	Approved w Changes and Closed	Accepted proposals #1 and #2. For proposal #3, point to 1.6.2 of V1. "Failures of this type are discussed in 1.6 of V1". Open new item 23-56 for Columns in V2.

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-14	MTG		1	5	Revision of Ti-6Al-4V Die Forging Property Table	Agenda	Continue	This item was Approved with Changes and Closed to remove AMS 6931 from the table and open a new item for continuing the analysis. In the AMS meetings following the MMPDS meetings, it was found that forging product had not been balloted for removal from AMS6931 as previously decided. This makes removal of the specification from the table premature. Battelle decided to continue this item until the Spring meeting. No new item is needed for the analysis.
23-16	MTG		1	3	2050 SCC Test Data	Status	Continue	Not covered due to time constraints. Please let Battelle know if you have data to contribute.
23-18	MTG		1		QPL for SAE AMS Metals	Status	Closed w no Action	K. Sabo, SAE AMS Metals Committee Chair, gave a presentation (included in minutes). Currently there is no consensus on going forward with the QPL. Especially producers were against it. There was agreement that purchasing to AMS alone is insufficient for protecting properties. Large OEM have own QPL and requirements. Ken noted that AMS can create QPL, but requires consensus. Jay would like additional requirements added to AMS reporting. D. Hall has requested permission to share the White Papers with producers. NEW ITEM to add to reporting in AMS specs.
23-19	GTG-F	ETTG	2	9	Review of 9.7 for Volume II	Status	Continue	FTG has not started on this.
23-20	GTG	ETTG	2	9	Section 9.8 & 9.9 for Volume II	Status	Continue	Battelle will begin to write sections with examples appropriate for Volume II. May write the examples so that only one version is necessary.

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-22	ETT		2	3	6061-RAM2 per AMS 7054	Status	Continue	C. Johnson, Elementum 3D gave a status report. They are continuing to collect data.
23-23	GTG	ETT	2	9	Analysis of AM data for Material Specification	Agenda/ Handout	Approved and Closed	D. Hall presented this item. Discussed reasons for the decision to pool additive data for new specifications when sponsored by multiple suppliers.
23-25	GTG	ETT	2	multi	Additional Content Required to Publish Material Allowable Entries in Volume II	Handout	60 Day Approval	D. Hall presented this Handout item. This item will be inserted in MMPDS V2 initial release. Battelle will work with the GSG on final wording. Item was approved, but since was a Handout, 60 day approval is needed.
23-27	GTG-F	FTG	1	9	Modification of Sunset Procedures for Swaged Collar / Threaded Fasteners	Handout	Continue	Discussed with 23-28
23-28	GTG-F	FTG	1	9	Modification of Sunset Procedures for Solid Rivets	Handout	Continue	C. Reakes led discussion of this Handout item. Requested that lot release data (fastener shear or other) be sent to Battelle to determine a method that can be used. Identify the test method used. Battelle to identify top priority part numbers in the final minutes.
23-29	GTG-F	FTG	1	9	Modification of Sunset Procedures for Blind Fasteners	Handout	Continue	Discussed with 23-28

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-30	GTG-F	FTG	1	9	Minimum Spec Content Requirements for Fasteners (like 9.2.2)	Handout	Continue	C. Reakes led discussion of this Handout item. Section 9.2.2 already says "fastener or joining system". Noted sentence "covered by a public, industry .. spec" does not apply to most fastener specs, since they are proprietary specs. Add sentence about "or under ... 'watchdog'". Request FTG review section 9.2.2. and determine what changes may be needed. Bob G will raise the issue at NASC (under AIA).
23-31	MTG	ASG, MATSSG	1	3	Confirm SCC Resistance Caution for 2024-T42, T62 Plate	Agenda	Closed w no Action	C. Shannon presented this item. The caution should remain on T42 and T62.
23-32	GTG		1, 2	9	Clarify Terms "reference" and "derived" in Indirect Method	Agenda	Approved w Changes and Closed	M. Snyder presented this item. Modify Reference definition (see pdf). Modify Derived definition to remove "new" and add "legacy" before "reduced ratio". Open New item 23-58 to change "baseline" to "reference" and modify subscripts in indirect method equations.
23-33	GTG			9	FCGR Variable Load Analysis Methods	Status	Continue	C. Reakes gave a status report. Changed name from FCP.
23-34	GTG		1, 2	9	Role and Documentation of Specimen Location Used in Indirect Analysis	Status	Continue	M. Snyder gave an update on this item. If you insert specimen location in the indirect method tool, it will be paired; if not, then just the lots will be paired. Tensile and other properties should be in close proximity. More of a concern for AM. Determined that we don't need to include anything in V1; it is adequate the way it is. Continue this item for V2 only.

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-35	GTG	ASG	1, 2	9	Guideline to Reduce Compression, Shear, and Bearing	Agenda	Approved w Changes and Closed	C. Shannon presented this item with changes to V1 and V2. Changes to 9.5.7.4(4).
23-36	GTG-F	FTG	1	9	Ch. 8 A-Basis Static Allowables Requirement for Fastener Fatigue Figures	Status	Continue	No effort for this meeting. Will work on for spring meeting.
23-37	GTG			9	Changes to Section 9.9.5.1 Supporting Gamma Regression	Agenda	60 Day Approval	M. Snyder presented this item for V1. 60 Day approval to add a statement about what to do if not combinable - add more mechanical tests.
23-38	GTG		1, 2	9	Mechanical Property Table Presentation of Test Orientations	Agenda	Continue	ASG does not want to add grain orientations to table format. Requested that we review CH1 and possibly add clarifications. Battelle to check with database licensees to make sure they are reporting test orientations correctly (not simplifying to lowest value for grain direction).
23-39	GTG				MMPDS Bylaws Glossary	Agenda	Approved w Changes and Closed	D. Hall presented this item. Change "Agenda" to "Agenda Book". "The agenda book is compiled by the Secretariat.." Handout Item - add 3rd -or items added after the agenda was circulated. Add Handouts cannot be approved unless using a 60Day approval. This is usually used in a fall meeting for items that are needed for next version and is always 60day term (see pdf for wording). Handout - change to "The Handout Book is compiled..." 60Day - add "This might include items in the Handout Book."

## 42nd MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-40	MTG		1	3	Stabilization of AMS 4320 for 7149 Aluminum Forging	Agenda	Approved and Closed	C. Shannon presented this item.
23-41	GTG-F	FTG		8	Fastener Tables Dry/Wet Footnote	Agenda	Closed w no Action	C. Reakes presented this item for discussion. Determined that no additional information is needed in Chapter 8.
23-42	MTG		1	5	Upgrade and Expansion of CP-70 Ti per AMS 4921	Agenda	Continue	C. Shannon presented this item. Make final table cleaner. Add footnotes where LT, ST only apply to rectangular bar (for S-Basis).
23-43	MTG		1	3	Correction to 7349-T76511 Extrusion Mechanical Properties	Agenda	Continue	C. Shannon presented this item. Constellium to send data.
23-44	GTG		1, 2	9	Derived Properties to Include S-Basis	Agenda	Continue	M. Snyder presented this item. There was discussion on what is mandatory and several conversations on structure of the table.
23-45	GTG		1, 2	9	Update to Table 9.10.6	Agenda	Approved and Closed	M. Snyder presented this item.
23-46		PSG			NIMS/NEDO Intro Presentation	Present.	Continue	NIMS gave a presentation on a series of advanced Ni-based superalloys. A copy of the slides will be included in the final minutes.
23-47	GTG		1, 2	1	Clarification of Total Elongation in 1.4.4.8	Agenda	Approved and Closed	D. Hall presented this item in ETTG. Battelle will look into current data submission guidelines to determine if a new item is needed to require elongation after fracture.



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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-48	ETTG		2	5	Ti-6Al-4V per AMS 7004/7005	Handout	Continue	<p>Mariia Stepanova, Norsk, gave a presentation on their data submission plan. Norsk asked if elevated temp for modulus was needed, since current application is room temp. Group agreed no elevated temp modulus is needed. Norsk also asked if it was necessary to polish and micrograph all the samples. Would like to polish and micrograph a representative number of samples from older builds to show that material is same quality. Norsk will provide some samples of previous data.</p> <p>Agreed that they do not have to show all. They will do their best to do as much as they can. Lots of discussion that some data are S-Basis and tensile C- and D-Basis. This is allowed per current guidelines. Open new item 23-59 to determine how we handle Andrew's question (in chat). What happens when we get data to upgrade from S to C/D-Basis, going from direct analysis to indirect analysis. Fracture will accept KIsi (not Kq). (can include in agenda item). Fatigue question - we will accept what data you have. Test plan approved.</p>
23-49	GTG	ETTG	2	9	Definition of S-Basis for Volume II	Agenda	Approved w Changes and Closed	D. Hall presented this item.
23-50	MTG		1	3	Revision to 7475-T7351 AMS4202 Derived Properties	Agenda	Approved and Closed	C. Shannon presented this item. There were disagreements on changing the value. Vote 3 nay to 8+ to revise.

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-51	MTG		1	6	Thickness Expansion for Haynes 282 Alloy	Agenda	Approved and Closed	C. Shannon presented this item.
23-52	FTG		1		Clarification of Typical Yield Joint Curve	Status	Continue	N. Anderson requested this item. Battelle to identify where rewording needed.
23-53	MTG		1	5	Fatigue Curve for Ti-6-2-4-2		New	From Item 21-45. Further investigation on Figure 5.3.3.1.8(a) of Item 21-45, 42nd agenda for improved fit. Look at BOX-COX.
23-54	MTG		1		Review of Fracture Toughness Tables		New	From Item 22-05. Determine if rows with no mechanical property tables should remain. Investigate rows where
23-55	GTG		1		Definitions in Volume I		60 Day Approval	This new item is from Item 23-01 to keep the definitions in Volume I in agreement with the approved definitions in Volume II.
23-56	GTG	ETTG	2		Use of Columns in Volume II		New	From Item 23-12. Consider inserting text from Section 1.6.2 of V1 into Section 1.5.3.1 of V2.
23-57	GTG				MMPDS Bylaws: Clarify GCC roles and responsibilities.		New	GCC members asked for clarification of the GCC's authority to overturn a recommendation approved by any one of the Task Groups.
23-58	GTG		1,2	9	Update Subscripts in Indirect Equation		New	From Item 23-32 to update "baseline" to "reference" and modify subscripts in indirect method equations.
23-59	GTG		1, 2	9	Scenarios for Upgrading from S-Basis to C/D-Basis		New	A. Steevens (Boeing) asked Battelle to investigate the possible scenario that an S-Basis property is published using the direct method and then additional data is submitted to use the indirect method for C/D-Basis. Specifically, what if the direct analysis for the S-Basis and the indirect analysis for the C-Basis material allowable give different answers?

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Item No	Responsible Group		HDBK Vol.	Chpt	Title	Type	Action	Meeting Description
	Final	Initial						
23-60	GTG				Definition of S-Basis for Volume I		New	Definition for V1 in Glossary. Add to definition that sometimes the S-Basis is a statistical minimum. Also include derived properties in definition.
23-61	ETT	G			V2WG Coordination & Direction		New	S. Cordner (NASA, ETTG co-Chair) requested that time be scheduled for this group during meeting week's