

Delivering Results from Multiple S1000D Issues

Mitchell Bakos

CTO

Global Publishing Solutions Ltd.
(GPSL)

E-mail: mbakos@gpsl.co

About GPSL

- Founded in 2008 by the producers of 3B2 (1992)
- GPSL are experts in the field of content technologies that support the creation, management, and distribution of technical information in OEMs and service depots
- The solutions we deliver help our customers to improve **effectiveness** and their **equipment availability**.
- Customers: US Army, Lockheed Martin, General Dynamics

Looking for Better Results?



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Does it Make Sense? What to do with legacy content?

- Early issues of S1000D are being specified alongside new issues
- Old and new systems are supported with MIL-STDs too
- Commercial, structured information is in the mix too
- No matter the standard, all of the technical content is valuable to ensure systems are available and mission ready



Doug Goehring CC-BY 2.0

- Does it make sense?
 - To convert all of this information (at what cost)?
 - To migrate to new systems (what are the benefits)?
 - To unify data and processes that deliver advanced performance in the field?

Disparate Systems Impact Availability and Readiness

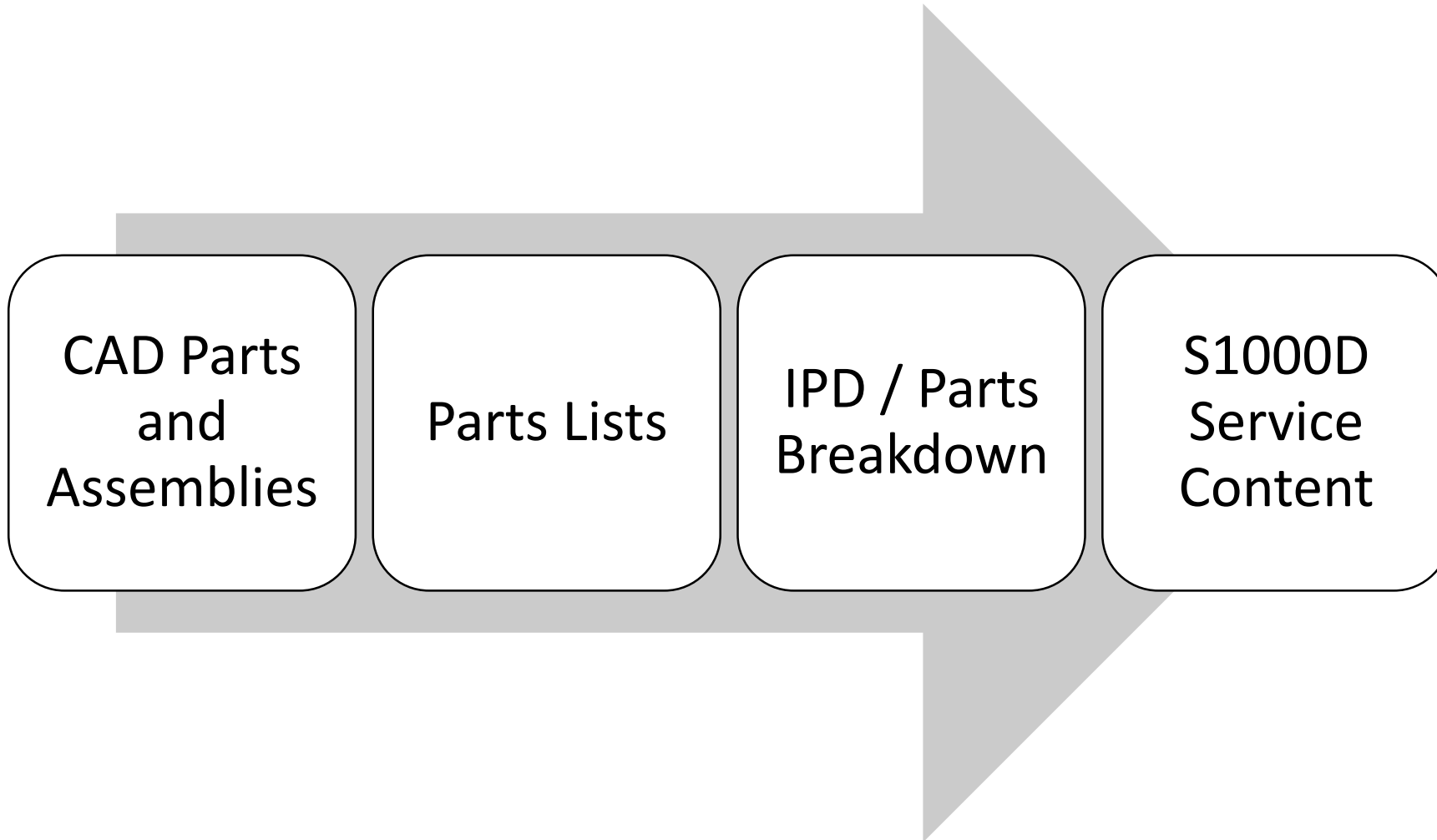
- Service information needs to tap upstream information from engineering and critical business systems
- Existing content is containerized within its standard or issue.
- Friction is generated from the field to the source when service information assets are not optimized
- Establishing a cohesive workflow across systems delivers positive operational results internally and most notably to the field.
 - More, valuable content can be tapped.



Making it New(er) S1000D and MIL-STD Workflows

- One system workflow for multiple S1000D issues and content standards
- Availability result gains through integration with engineering data
- End users and equipment performance improvements are unlocked
 - Content processes are simplified
 - Complexity of migration is eliminated
 - Service Life Extensions of Mission Critical Systems is more manageable

Associating Data from Engineering to Service



Create Parts Lists from BOMs

Number	Name	Attributes	Visualization	Related Parts	Service/Model Information	Items	GOLF_CART A.2
000000001	PL01						
GP000001	GOLF_CART						
GP000002	LEG						
GP000003	LEFT_ACTUATOR						
GP000004	LOWER_LEFT_ARM						
GP000005	UPPER_LEFT_ARM						
GP000006	LOWER_LEFT_ACTUATOR						
GP000007	AXLE_LATCH						
GP000008	AXLE_FASTENER						
GP000009	BOLT_1_4						
GP000010	NUT_1_4						
GP000011	RIGHT_ACTUATOR						
GP000012	LOWER_RIGHT_ACTUATOR						
GP000013	UPPER_RIGHT_ARM						
GP000014	LOWER_RIGHT_ARM						
GP000015	UPPER_ACTUATOR						
GP000016	ACTUATOR_LOCK						
GP000017	BOLT_1_8						
GP000018	NUT_1_8						
GP000019	LOWER_SUPPORT						
GP000020	LOWER_SUPP_BAR						
GP000021	SUPPORT_CAP						
GP000022	LOWER_BAG HOLDER						

Number	Name	Version
GP000001	GOLF_CART	A.2 (Design)
GP000002	LEG	A.2 (Design)
GP000003	LEFT_ACTUATOR	A.2 (Design)
GP000004	LOWER_LEFT_ARM	A.1 (Design)
GP000005	UPPER_LEFT_ARM	A.1 (Design)
GP000006	LOWER_LEFT_ACTUATOR	A.1 (Design)
GP000007	AXLE_LATCH	A.1 (Design)
GP000008	AXLE_FASTENER	A.1 (Design)
GP000009	BOLT_1_4	A.1 (Design)
GP000010	NUT_1_4	A.1 (Design)
GP000011	RIGHT_ACTUATOR	A.2 (Design)
GP000015	UPPER_ACTUATOR	A.1 (Design)
GP000016	ACTUATOR_LOCK	A.1 (Design)
GP000017	BOLT_1_8	A.1 (Design)
GP000018	NUT_1_8	A.1 (Design)
GP000019	LOWER_SUPPORT	A.2 (Design)
GP000020	LOWER_SUPP_BAR	A.1 (Design)
GP000021	SUPPORT_CAP	A.1 (Design)
GP000022	LOWER_BAG HOLDER	A.1 (Design)

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Add or Edit Supplemental Information

Find in Structure


Number	Name
000000001	PL01
GP000001	GOLF_CART
GP000002	LEG
GP000003	LEFT_ACTUATOR
GP000004	LOWER_LEFT_ARM
GP000005	UPPER_LEFT_ARM
GP000006	LOWER_LEFT_ACTUATOR
GP000007	AXLE_LATCH
GP000008	AXLE_FASTENER
GP000009	BOLT_1_4
GP000010	NUT_1_4
GP000011	RIGHT_ACTUATOR
GP000012	LOWER_RIGHT_ACTUATOR
GP000013	UPPER_RIGHT_ARM
GP000014	LOWER_RIGHT_ARM
GP000015	UPPER_ACTUATOR
GP000016	ACTUATOR_LOCK
GP000017	BOLT_1_8
GP000018	NUT_1_8
GP000019	LOWER_SUPPORT
GP000020	LOWER_SUPP_BAR
GP000021	SUPPORT_CAP
GP000022	LOWER_BAG HOLDER

Attributes Visualization Related Parts Service/Model Information Items GOLF_CART A.2											
Item Number	Item Variant	Item Sequ...	Variant	Indenture	Part Number	Manufacturer	Name	Quantity	Illustrated	Remarks	
1	A	0	A	0	GP000001	U17V0	GOLF_CART	1	Yes		
2	A	0	A	1	GP000002	U17V0	LEG	1	Yes		
3	A	0	A	2	GP000003	U17V0	LEFT_ACTUATOR	1	Yes		
4	A	0	A	2	GP000004	U17V0	LOWER_LEFT_ARM	1	Yes		
5	A	0	A	2	GP000005	U17V0	UPPER_LEFT_ARM	1	Yes		
6	A	0	A	2	GP000006	U17V0	LOWER_LEFT_ACTUATOR	1	Yes		
7	A	0	A	2	GP000007	U17V0	AXLE_LATCH	1	Yes		
8	A	0	A	2	GP000008	U17V0	AXLE_FASTENER	1	Yes		
9	A	0	A	2	GP000009	U17V0	BOLT_1_4	2	Yes		
10	A	0	A	1	GP000010	U17V0	NUT_1_4	2	Yes		
11	A	0	A	2	GP000011	U17V0	RIGHT_ACTUATOR	1	Yes		
12	A	0	A	2	GP000012	U17V0	LOWER_RIGHT_ACTUAT...	1	Yes		
13	A	0	A	2	GP000013	U17V0	UPPER_RIGHT_ARM	1	Yes		
14	A	0	A	2	GP000014	U17V0	LOWER_RIGHT_ARM	1	Yes		
15	A	0	A	2	GP000015	U17V0	UPPER_ACTUATOR	1	Yes		
16	A	0	A	2	GP000016	U17V0	ACTUATOR_LOCK	1	Yes		
17	A	0	A	2	GP000017	U17V0	BOLT_1_8	4	Yes		
18	A	0	A	2	GP000018	U17V0	NUT_1_8	4	Yes		
19	A	0	A	2	GP000019	U17V0	LOWER_SUPPORT	1	Yes		
20	A	0	A	2	GP000020	U17V0	LOWER_SUPP_BAR	1	Yes		
21	A	0	A	2	GP000021	U17V0	SUPPORT_CAP	1	Yes		

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Associate One Parts List to Multiple S1000D IPDs

Actions  AAD Part List - 0000000041 (PL-301-06-01), A.8 

- Details
- Structure
- Changes
- Representations/Annotations
- Related Objects
- History
- Where Used
- 

[Illustrated Parts Documents](#) | [Dynamic Documents](#) | [BOMs](#) | [Published Content](#)



 **Illustrated Parts Documents** 

Context	Name	Issue Number	In Work	State
Issue 4.1 Test Product 01	DMC-GPSL41-A-12-10-00-01A-941A-A	000	01	Work In Progress
Issue 3.0.1 Product Demo 07	DMC-GPSL301-A-12-10-00-01A-941A-A	000	01	Work In Progress

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Add ICNs to Each IPD

Associate Information Control Number

Context	Illustrated Parts Documents		
Issue 4.1 Test Product 01	DMC-GPSL41-A-12-10-00-01A-941A-A:	ICN-GPSL41-A-121000-A-U17V0-00000-A-0	
Issue 3.0.1 Product Demo 07	DMC-GPSL301-A-12-10-00-01A-941A-A:	ICN-GPSL301-A-121000-A-U17V0-00002-A-	

Create Publications from Each IPD

UNCLASSIFIED



Figure 1 PL01

GP SL41-A-12-10-00-01A-941A-A

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Fig	Item	Units per assembly/ Unit of issue	CAGE	Part No. NATO Stock No.	Description	*Usable on code assy MV/Effect	ICY
1							
1A	1	1	U17V0	GP000001	GOLF_CART		
2A	1	1	U17V0	GP000002	LEG		
3A	1	1	U17V0	GP000003	•LEFT_ACTUATOR		
4A	1	1	U17V0	GP000004	•LOWER_LEFT_ARM		
5A	1	1	U17V0	GP000005	•UPPER_LEFT_ARM		
6A	1	1	U17V0	GP000006	•LOWER_LEFT_ACTUATOR		
7A	1	1	U17V0	GP000007	•AXLE_LATCH		
8A	1	1	U17V0	GP000008	•AXLE_FASTENER		
9A	2	2	U17V0	GP000009	•BOLT_1_4		
10A	2	2	U17V0	GP000010	NUT_1_4		
11A	1	1	U17V0	GP000011	•RIGHT_ACTUATOR		
12A	1	1	U17V0	GP000012	•LOWER_RIGHT_ACTUATOR		
13A	1	1	U17V0	GP000013	•UPPER_RIGHT_ARM		
14A	1	1	U17V0	GP000014	•LOWER_RIGHT_ARM		
15A	1	1	U17V0	GP000015	•UPPER_ACTUATOR		
16A	1	1	U17V0	GP000016	•ACTUATOR_LOCK		
17A	4	4	U17V0	GP000017	•BOLT_1_8		
18A	4	4	U17V0	GP000018	•NUT_1_8		
19A	1	1	U17V0	GP000019	•LOWER_SUPPORT		
20A	1	1	U17V0	GP000020	•LOWER_SUPP_BAR		
21A	1	1	U17V0	GP000021	•SUPPORT_CAP		
22A	1	1	U17V0	GP000022	•LOWER_BAG HOLDER		
23A	1	1	U17V0	GP000023	PIN		

GP SL41-A-12-10-00-01A-941A-A

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One Parts List now generates:

- PDF
- IETM
- S1000D XML (multiple issues)
- Transform to Other Formats (MilSpec, DITA, etc.)

Automatic generation of publications and other deliverables from one source.

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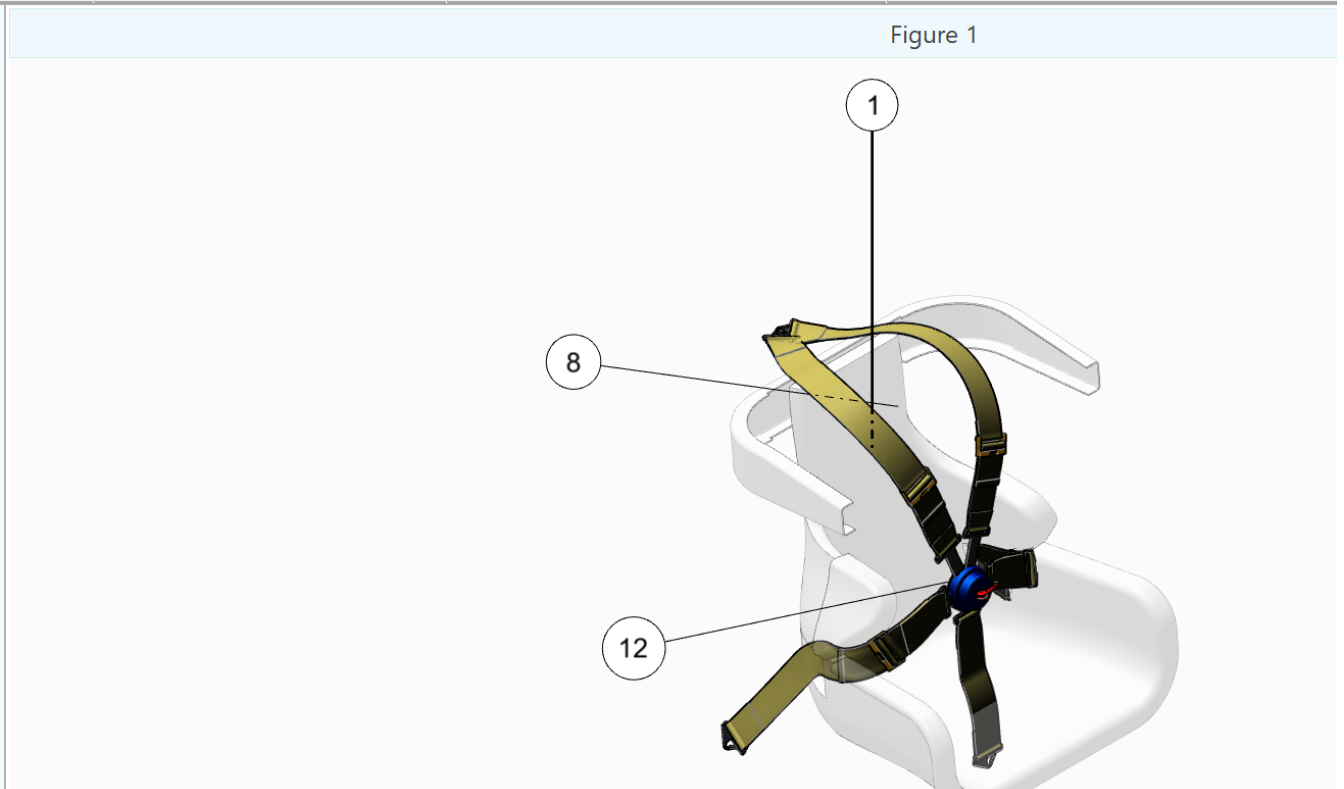
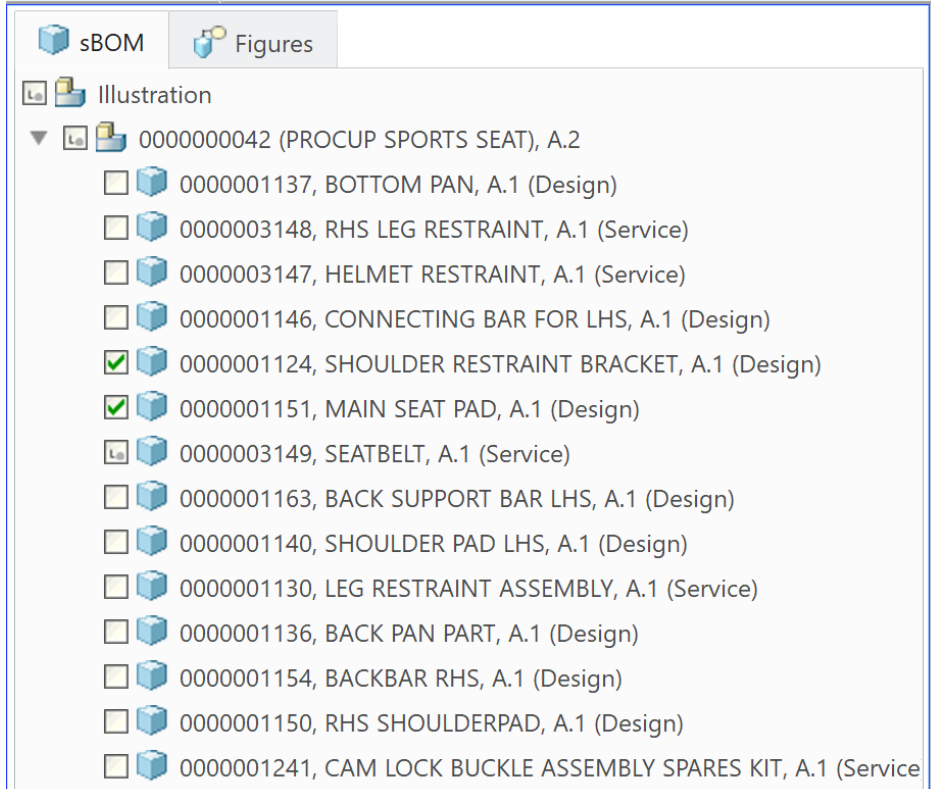
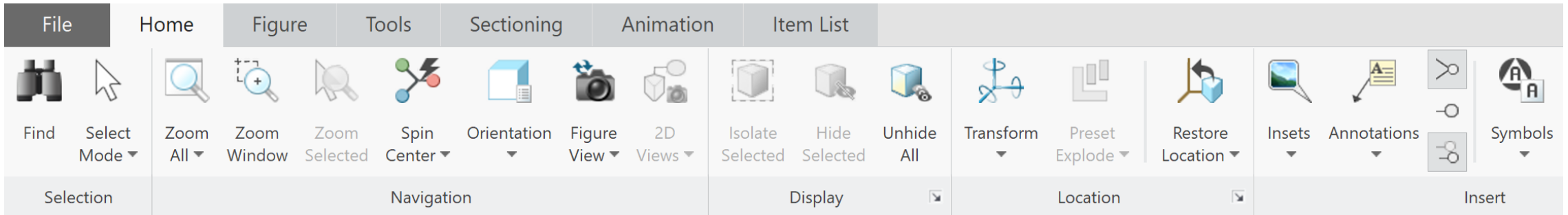
Utilizing Your Engineering Drawings

The screenshot displays a CAD software interface with a ribbon menu at the top containing tabs like File, Home, Figure, Tools, Sectioning, Animation, and Item List. The main workspace shows a 3D exploded view of a sports seat assembly with 14 numbered callouts. A red circle highlights the 3D model. To the left, the sBOM tree is visible, listing various components like 'BOTTOM PAN, A.1 (Design)' and 'SEATBELT, A.1 (Service)'. A red circle highlights the sBOM tree. At the bottom, the Item List table is shown, with a red circle highlighting the table content.

ITM	Item Tag	QTY	partslstlink_itemSequ	part_number
0	1 0000003149, SEATBELT, A.1 (Service)	1		0000003149
1	10 0000001137, BOTTOM PAN, A.1 (Design)	1		0000001137
2	11 0000001146, CONNECTING BAR FOR LHS, A.1 (Design)	1		0000001146
3	12 0000001151, MAIN SEAT PAD, A.1 (Design)	1		0000001151

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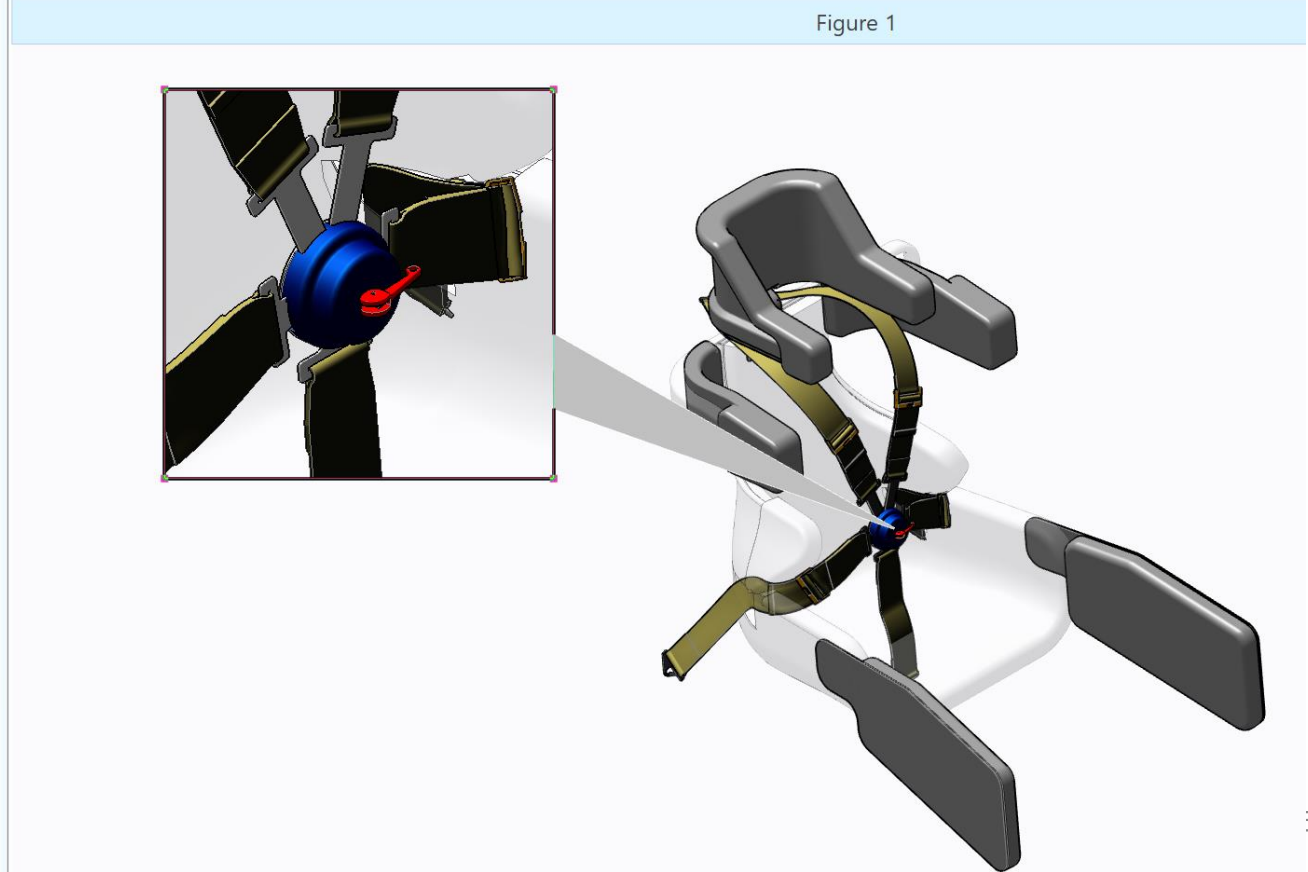
Isolating Parts and Assemblies



Creating Insets and Highlighting Areas

File		Home		Figure		Tools		Sectioning		Animation		Item List		Inset	
		Shape	Weight 0.35	Radius	Style	Halo	Leader	Weight 0.1	Width 10.58	Color	Render Mode	Reset to Focus	Edit Properties	Unlock Focus	Delete
Border						Leader						Focus		General	

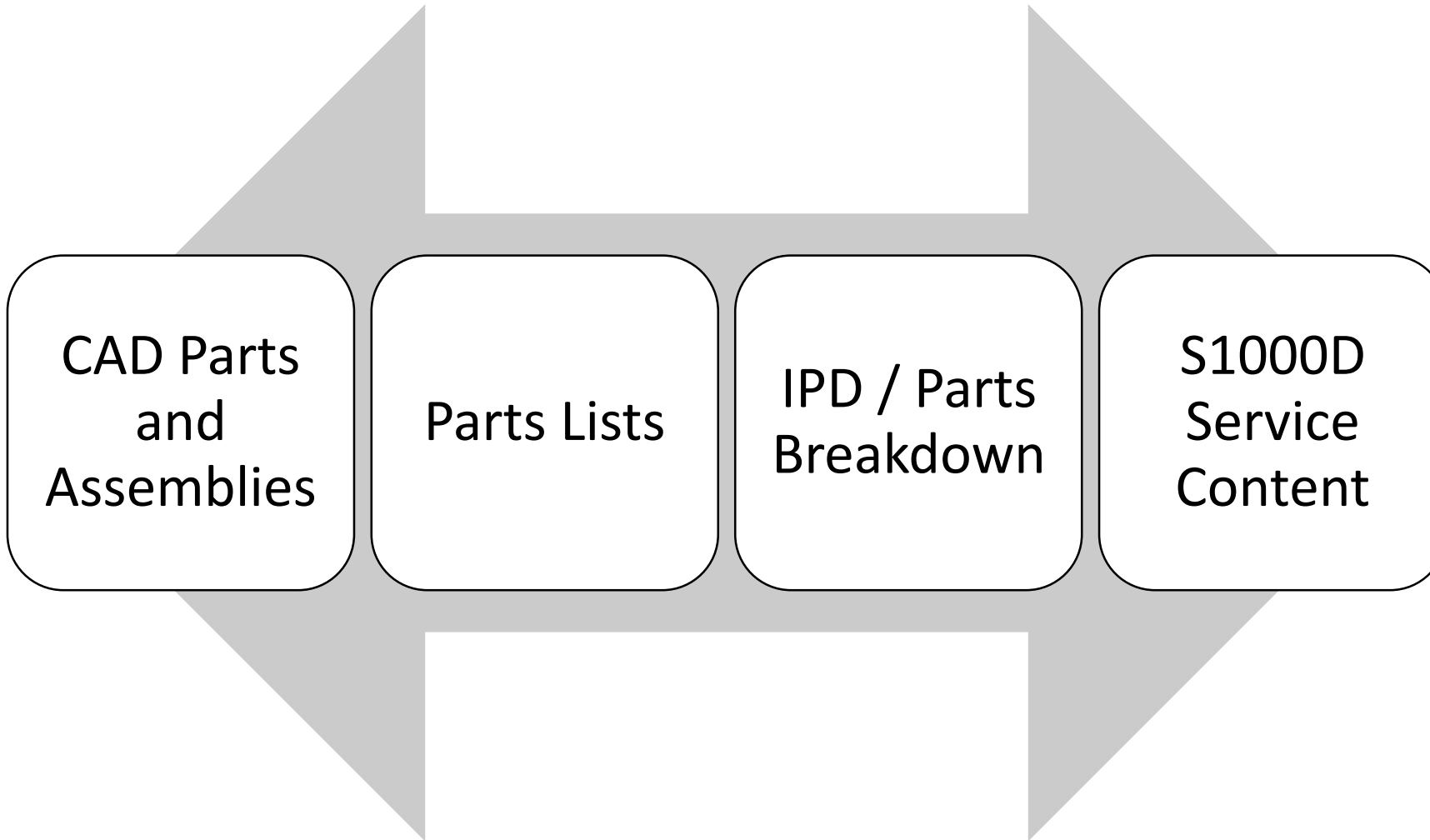
- sBOM
- Figures
- Illustration
- 000000042 (PROCUP SPORTS SEAT), A.2
 - 000001137, BOTTOM PAN, A.1 (Design)
 - 000003148, RHS LEG RESTRAINT, A.1 (Service)
 - 000003147, HELMET RESTRAINT, A.1 (Service)
 - 000001146, CONNECTING BAR FOR LHS, A.1 (Design)
 - 000001124, SHOULDER RESTRAINT BRACKET, A.1 (Design)
 - 000001151, MAIN SEAT PAD, A.1 (Design)
 - 000003149, SEATBELT, A.1 (Service)
 - 000001163, BACK SUPPORT BAR LHS, A.1 (Design)
 - 000001140, SHOULDER PAD LHS, A.1 (Design)
 - 000001130, LEG RESTRAINT ASSEMBLY, A.1 (Service)
 - 000001136, BACK PAN PART, A.1 (Design)
 - 000001154, BACKBAR RHS, A.1 (Design)
 - 000001150, RHS SHOULDERPAD, A.1 (Design)
 - 000001241, CAM LOCK BUCKLE ASSEMBLY SPARES KIT, A.1 (Service)



Customizing Parts List Tables

The screenshot displays the S1000D software interface with the 'Item List Column Chooser' dialog box open. The dialog box is titled 'Item List Column Chooser' and has a help icon and a close button in the top right corner. It is divided into two main sections: 'Available Fields' and 'Displayed Fields'. In the 'Available Fields' section, there is a dropdown menu currently showing 'MPMLink' and a list of fields: MASK, NAVIGATION_CRITERIA_ID, COMPONENT_TII, MASTER_TII, LINK_TII, OCCURRENCE_TII, and ENCODED_NAVIGATION_CRITERIA. Below this list are 'Add >>' and '<< Remove' buttons. In the 'Displayed Fields' section, there is a list of fields: Sort Order, ITM, Item Tag, QTY, partslistlink_itemSequenceNumber, and part_number. The 'part_number' field is highlighted in blue. To the right of this list are '>>' and '<<' buttons. At the bottom right of the dialog is a 'Reset to Default' button. At the very bottom of the dialog are 'OK' and 'Cancel' buttons. The background shows the 'Item List' ribbon with various options like 'Manual', 'Automatic', 'Type: Parts Only', 'Selection: Entire Structure', 'Callouts: User Defined', 'Numbering', 'Grouping', 'Column Chooser', 'Rename', 'Renumber', 'Group', 'Ungroup', 'Itemized', 'Delete', 'Annotations', 'Combine for Same Item', 'Draw One for Same Item', and 'Draw When Hidden'. On the left, a tree view shows a hierarchy of parts under 'Illustration', including '000000042 (PROCUP SPORTS SEAT), A.2' and its sub-components. On the right, a 3D model of a seat part is shown with callout lines and numbers 4, 5, and 9.

Engineering to Service as a Two-Way Street



Parts <-> Procedures (Determining Impact)

Find in Structure

Name	Translat...	Number	View	Version
GEARBOX	GEARB...	00000...	Service	A.1 (Service)
GEARSHAFT - COUNTERSHAFT	GEARS...	00000...	Service	A.1 (Service)
PLATES - RETAINERS - FORKS - GASKETS	PLATES...	00000...	Service	A.1 (Service)
SHIFTER - PLATES, BUSHINGS, ARM	SHIFTE...	00000...	Service	A.1 (Service)
TAILHOUSE / REVERSE	TAILHO...	00000...	Service	A.1 (Service)
Front Axle	Front Axle	00000...	Service	A.3 (Service)
Power Train	Power T...	00000...	Service	A.2 (Service)
Clutch	Clutch	00000...	Service	A.1 (Service)
Cooling System Engine	Cooling ...	00000...	Service	A.2 (Service)
Drive Shaft	Drive S...	00000...	Service	A.3 (Service)
Engine	Engine	00000...	Service	A.3 (Service)
DMC-MPV-A-B3-10-00-00A-520A-D			Service	1,0.1 (Service)
DMC-MPV-A-B3-10-05-00A-520A-D			Service	1,0.1 (Service)
DMC-MPV-A-B3-20-00-000-520A-D			Service	1,0.1 (Service)
DMC-MPV-B-C2-01-01-010-520A-D			Service	1,0.1 (Service)
DMC-MPV-A-C2-00-02-01A-520A-D			Service	1,0.2 (Service)
DMC-MPV-A-C2-03-01-0000-530A-D			Service	4,0.1 (Service)
Heat Shield	Heat Sh...	00000...	Service	A.1 (Service)
Switch Control	Switch ...	00000...	Service	A.1 (Service)
Transverse Support Beam	Transve...	00000...	Service	A.1 (Service)

Attributes
Information Element List
Impacted By

		Name	Number	Version
+ -				
		2K10 Engine Assembly	0000000424	A.1 (Design)
		2K10 Engine Block	0000000392	A.1 (Design)
		2K10 Engine Lower End	0000000317	A.1 (Design)
		2K10 Engine Top End	0000000487	A.1 (Design)
		Engine	0000003680	A.8 (Design)

Using Service Content in Publications

Actions ▾ Publication Structure - 0000001452, Synergy_Service_Manual, OEM, A.6 (Service)

Details Structure Representations Changes +

Editing: Insert Existing, Insert New, Remove, Edit, Move
 Check Out/In: Check Out, Check In, Undo Checkout, Checkouts
 Clipboard: Paste, Copy
 Viewing: Views, Display
 New/Add To: New, Add to
 Filter: Edit Filter, Current Filter, Saved Filter

Find in Structure: [input type="text"] [dropdown] [up/down arrows] All

Name	State	PTC
▾ Synergy_Service_Manual	In Work	
▾ Table of Contents	In Work	
▾ Body	In Work	
▾ Chassis	In Work	
▾ Steering	In Work	
▾ Anti-Lock Braking System (ABS)	In Work	
▾ General Description	Released	
▾ Park Brake Specifications	Released	
▾ Park Brake Theory of Operation	Released	
▾ Front Brakes Servicing (topic)	Released	
▾ Disk Brake Adjustment (procedure)	Released	
▾ Filling Brake Master Cylinder (topic)	Released	
▾ Bleeding Brake Hydraulic System (topic)	Released	
▾ Testing Performance Brakes (2011-2013 Models)	Released	
▾ Testing Performance Brakes (2014-2015 Models)	Released	
▾ Drive Train	In Work	

Synergy Information Element List Impacted By Attributes

▾ Publication Section Attributes

Name: Anti-Lock Braking System (ABS)
Number: 0000001455
Version: A.4 (Service)
State: In Work - Released - Canceled
Status: Checked in
Modified By: Pat Product Manager
Last Modified: 2015-12-18 00:48 EST
Service Description:
Apply title from content: No
Exclude content from output: No
Exclude title from Table of Contents: No
Item Choices: OPTION SET: Global Options
Authoring Language: English (United States)
Classification:
Default Content Location:
Plant:
System ID:

Mixed Standards in One Publication

- Combine S1000D, MIL-STD, ATA, DITA, etc.

The screenshot shows the S1000D software interface for a publication titled "S1000D 4.1 Publication Structure - 40A4657C, PMC-MPV-0K0D7-MM001-00, 2AAV4, 0,2.1 (Serv". The interface includes tabs for "Details", "Structure", "Representations", and "Changes". Below the tabs are several toolbars: "Editing" (Insert Existing, Insert New, Remove, Edit, Move), "Check Out/In" (Check Out, Undo Checkout, Check In, Checkouts), "Clipboard" (Paste, Copy), "Viewing" (Views, Display), and "New/Add To" (New, Add to). A "Find in Structure" search bar is also present.

Name	CI	View	Version	State
Wiring		Service	A.3 (Service)	In Work
Disassembly		Service	A.4 (Service)	In Work
Road wheel hub assembly - General (task)		Service	A.1 (Service)	Released
Suspension unit - Rear Axle (task)		Service	A.1 (Service)	Released
DMC-MPV-A-B3-10-00-00A-520A-D		Service	1.0.1 (Service)	Issued
DMC-MPV-A-B3-10-05-00A-520A-D		Service	1.0.1 (Service)	Issued
DMC-MPV-A-B3-20-00-000-520A-D		Service	1.0.1 (Service)	Issued
DMC-MPV-B-C2-01-01-010-520A-D		Service	1.0.1 (Service)	Issued
DMC-MPV-A-C2-00-02-01A-520A-D		Service	1.0.2 (Service)	Issued
DMC-MPV-A-C2-03-01-0000-530A-D		Service	4.0.1 (Service)	Issued
Assembly		Service	A.4 (Service)	In Work
IPD		Service	A.5 (Service)	In Work

Looking Through the Wrong End of the Telescope Turn it Around!

- Turn the telescope around
 - It will be easier to see...
 - Cohesively deliver positive results from multiple standards and issues
 - Make the legacy new without the pain of migration
 - Reignite the value of existing content in collaboration rich engineering data and newly developed service information
 - Deliver what the technician needs to achieve the best possible results.



Thank you
for your attention!

Questions?