

# Managing Find/Line Numbers with CAD

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- Background
- What's New in 10.2 M010



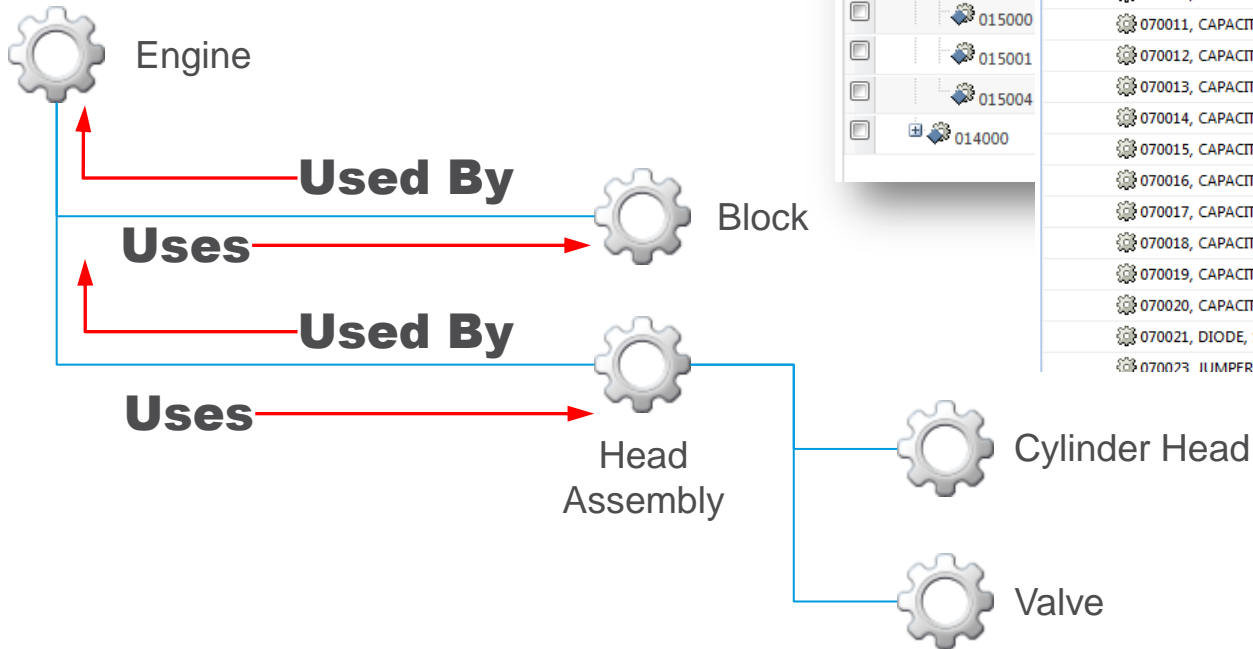
- Usages are the “glue” that tie together the product structure
- Relate parts to each other
- Defines Parents and Children
  - Uses – what are the children of the part
  - Used By – defines Where Used

Where Used Latest

Number	Version	Name	Context
070021		DIODE, SCHOTTKY, 30V, 200mA	HPSDR
012000	(Design) A.4	JANUS A/D - D/A	HPSDR
015002	(Design) A.5	HPSDR, LOW COST	HPSDR
015000			
015001			
015004			
013000			
015000			
015001			
015004			
014000			

Identity	Quantity	Unit	Reference Desig
015002, HPSDR, LOW COST, A.5 (Design)			
010000, ATLAS BACKPLANE, A.5 (Design)	1	each	PCB1
012000, JANUS A/D - D/A, A.4 (Design)	1	each	PCB2
070009, CAPACITOR, 10uF, 16V, SMD, A.1 (Design)	24	each	C1, C3-C4, C6, C10
070010, CAPACITOR, 2nF, 16V, SMD, A.1 (Design)	2	each	C2, C22
070011, CAPACITOR, 220nF, 16V, SMD, A.1 (Design)	6	each	C5, C11, C29-C32
070012, CAPACITOR, 470nF, 16V, SMD, A.1 (Design)	5	each	C7, C16, C25, C37,
070013, CAPACITOR, 100nF, 16V, SMD, B.1 (Design)	22	each	C8-C9, C13, C17, C
070014, CAPACITOR, 220uF, 16V, SMD, A.1 (Design)	4	each	C18-C21
070015, CAPACITOR, 47uF, 16V, SMD, A.1 (Design)	3	each	C33, C56, C66
070016, CAPACITOR, 1F, 16V, SMD, A.1 (Design)	3	each	C36, C49, C60
070017, CAPACITOR, 1uF, 25V, SMD, A.1 (Design)	9	each	C44, C46, C48, C62
070018, CAPACITOR, 1uF, 16V, SMD, A.1 (Design)	1	each	C47
070019, CAPACITOR, 10uF, 6.3V, SMD, A.1 (Design)	1	each	C51
070020, CAPACITOR, 2200pF, 50V, SMD, A.1 (Design)	2	each	C71, C79
070021, DIODE, SCHOTTKY, 30V, 200mA, A.1 (Design)	1	each	D1
070023, BUMPER CONN HEADFR 2POS .100 VERT TIN 9		each	IP1-IP6 IP10-IP12



- Have Attributes
  - Line Number
  - Find Number
  - Quantity
  - Unit of Measure

Line Number – is a unique index that aligns to ERP Line Number. Identifies the position of this part within a manufacturing bill of materials (BOM) in an Enterprise Resource Planning (ERP) system. Typically an integer field

Find Number – An attribute used to cross-reference a part in a product structure with the same part in an assembly drawing. Can be integer or alphanumeric

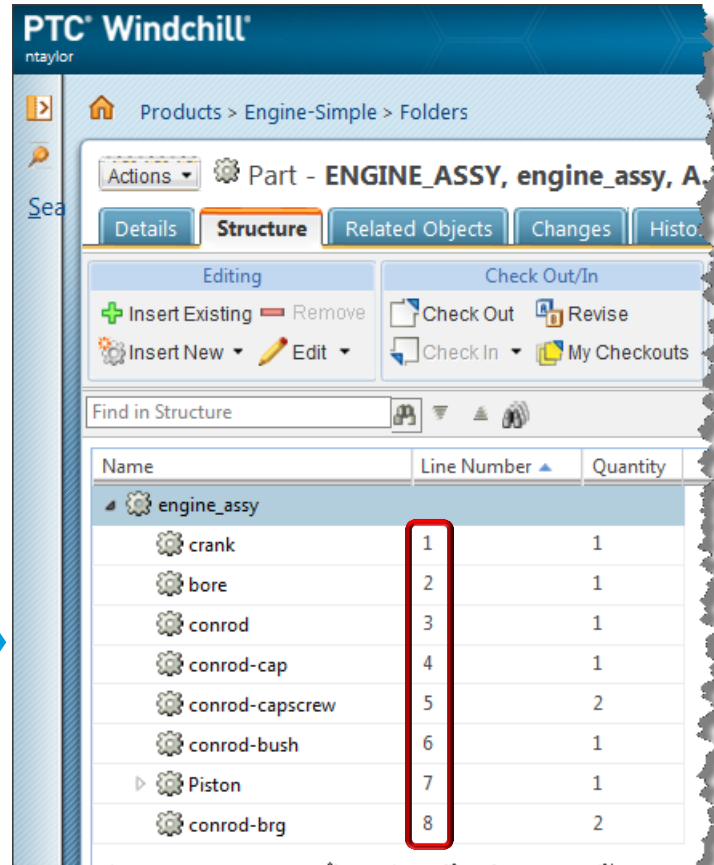
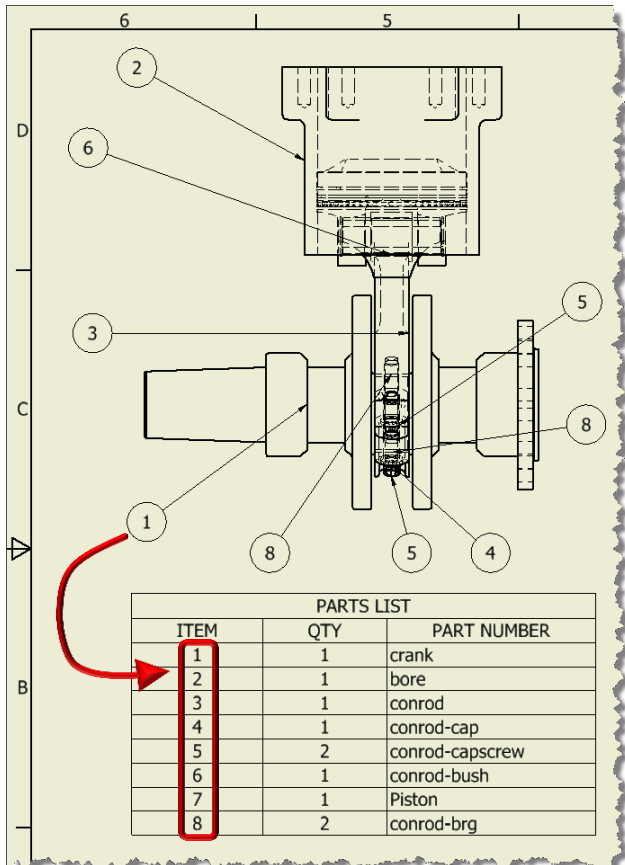
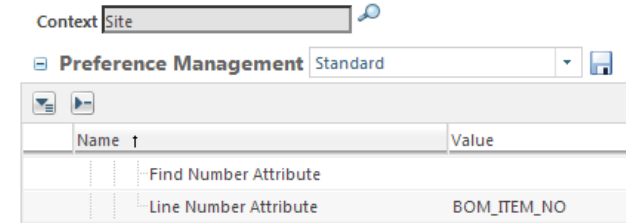
- Support Soft attributes
- Supports Filtering (in PSB)

Trace code – defines traceability type (eg Serial, Lot, MSN) used by Effectivity and Part Instances

Attributes   Uses   Occurrences   Visualization										
Number	Name	Version	End Item	Line Number	Quantity	Unit	Trace Code	Reference Designator	Find Number	
070009	CAPACITOR, 10uF, 16V, SMD	A.1 (Design)	No	10	1	each	Untraced	C4	30	
070021	DIODE, SCHOTTKY, 30V, 200mA	A.1 (Design)	No	20	4	each	Untraced	D1-D4	190	
070023	JUMPER, CONN HEADER, 2POS, ....	A.1 (Design)	No	30	7	each	Untraced	JP1,JP7,JP10-JP12,TP1-TP2	210	
070024	JUMPER, CONN HEADER, 3POS, ....	A.1 (Design)	No	40	7	each	Untraced	JP2-JP6,JP8-JP9	220	
070028	LED, RED, CLEAR, SMD	A.1 (Design)	No	50	7	each	Untraced	LED1-LED7	290	
070036	RESISTOR NETWORK, COMMON ...	A.1 (Design)	No	60	6	each	Untraced	RP3-RP8	390	
070066	CAPACITOR, 100nF, 50V, 10%, SMD	A.1 (Design)	No	70	40	each	Untraced	C1-C3,C5-C6,C9,C11,C13...	20	
070087	JUMPER, CONN HEADER, 5POS, ....	A.1 (Design)	No	80	1	each	Untraced	J1	230	
070088	CONNECTOR, JACK, BNC, R/A, 50...	A.1 (Design)	No	90	1	each	Untraced	J5	270	
070090	CONNECTOR. HEADER. DUAL 10P...	A.1 (Design)	No	100	2	each	Untraced	P2	340	

## Ability to drive Windchill Find Number or Line Number from CAD BOM

- CAD BOM attributes can be mapped to Windchill Part 'Line Number' and 'Find Number' fields via Windchill Preferences.
- Supported for Creo & Autodesk Inventor at 10.2 M010.



## Ability to drive Windchill Find Number or Line Number from CAD BOM

- New preferences for 'linking CAD Uses link attribute to Find and/or Line number

No	Name
1	FRAME
2	ENGINE
3	ENGINE_SCREW
4	BLOWER
5	BLOWER_SCREW
6	NUT

Identity	Find Number
0000000129, ac-40.asm, Demo Organization, A,1 (Design)	
0000000122, blower_screw.prt, Demo Organization, A,1 (Design)	5
0000000124, blower.asm, Demo Organization, A,1 (Design)	4
0000000132, nut.prt, Demo Organization, A,1 (Design)	6
0000000133, engine.asm, Demo Organization, A,1 (Design)	2
0000000135, engine_screw.prt, Demo Organization, A,1 (Design)	3
0000000136, frame.prt, Demo Organization, A,1 (Design)	1

EPM Service Preferences		EPM service preferences
Build Service Preferences		Preferences used by build service
Attributes Delimiter	,	This preference defines the delimiter character that separates the attributes to be published.
Attributes to be published on Link		Attributes to be published on Link
Attributes to be published on Master	*	Attributes to be published on Master
Attributes to be published on Occurr...		Attributes to be published on Occurrence
Attributes to be published on Part	*	Attributes to be published on Part
Build Image Association by Default	Yes	Build Image Association by Default
Contributing Content Attributes	*	Attributes to be published on Part by Contributing Content relationship.
Contributing Image Attributes	*	Attributes to be published on Part by Contributing Image relationship.
Find Number Attribute	FINDNUMBER	Name of an attribute on CAD Document Uses Link that should be copied to the Part Usage's Find Number.
Line Number Attribute		Name of an attribute on CAD Document Uses Link that should be copied to the Part Usage's Line Number.

- Map parameter to attribute on CAD Document Uses Link

Link Type	Parameter	Attribute	Value
EPM Document Reference Link	Component ID	identifier	Yes
EPM Document Uses Link	Component Name	name	Yes
CAD Document Uses Link	compRevNumber	compRevNumber	
Equipment Resource	Created On	thePersistInfo.createStamp	
ERP Material	Dependency Type	depType	No
ERP Material Document Describe Link	FINDNUMBER	FINDNUMBER	No
ERP Material Document Reference Link	Fixed	fixed	Yes
ERP Material EPM Document Describe Link	Geometry Restriction	referenceControl.geomRestr	
ERP Material Link			
Facility Resource			
Federated Link			

- Constraints

- Support 1-level deep
- Propagation of changes not supported by eTDD (building CAD from Part Structure)



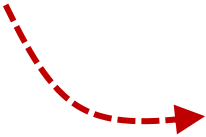
## Designated Component Parameter to manage Find/Line numbers

Parameters window showing a designated parameter:

Name	Type	Value	Desig...	Access	Source	Descri...	Restri...	Unit Q...	Unit
FINDNUMBER	Integer	3	<input checked="" type="checkbox"/>	Full	User-Defi...				

Supports usage of Integer or String attributes\*

Designated Parameter mapped to Windchill attribute



Model Tree showing the designated parameter mapped to Find/Line numbers:

Model Tree	FINDNUMBER
AC-40.ASM	
FRAME.PRT	1
ENGINE.ASM	2
ENGINE_SCREW.PRT	3
ENGINE_SCREW.PRT	3
ENGINE_SCREW.PRT	3
ENGINE_SCREW.PRT	3
BLOWER.ASM	3
BLOWER_SCREW.PRT	5
BLOWER_SCREW.PRT	5
BLOWER_SCREW.PRT	5
BLOWER_SCREW.PRT	5
NUT.PRT	6

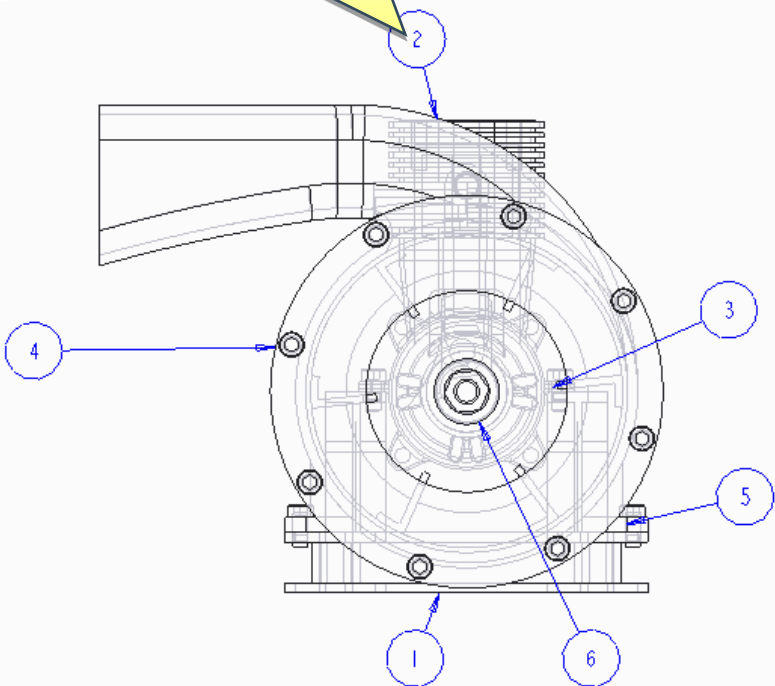
Display and manage values in Assembly model tree

## Display of Find Number on Creo Drawings

Set component parameter to display in drawing table

Item No.	Item Name
asm.mbr.param.FINDNUMBER	asm.mbr.name

Find numbers and corresponding balloons driven from assembly parameter



Configure BOM Balloon for table to utilize same component parameter

Table Properties dialog box, BOM Balloons tab. The 'BOM Balloon Parameter' field is set to 'im.FINDNUMBER'.

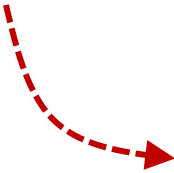
Item No.	Item Name
1	FRAME
2	ENGINE
3	ENGINE_SCREW
4	BLOWER
5	BLOWER_SCREW
6	NUT



## Parameters mapped to CAD and built to Part Structure

Find Number parameter stored on the CAD structure

File Name	Number	Quantity	FINDNUMBER	State
blower.asm	BLOWER.ASM	1	4	In Work
blower_screw.prt	BLOWER_SCREW.PRT	4	5	In Work
engine.asm	ENGINE.ASM	1	2	In Work
engine_screw.prt	ENGINE_SCREW.PRT	4	3	In Work
frame.prt	FRAME.PRT	1	1	In Work
nut.prt	NUT.PRT	1	6	In Work

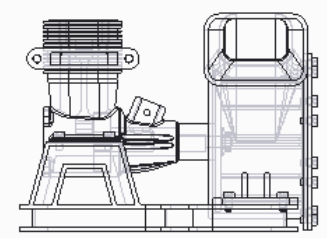
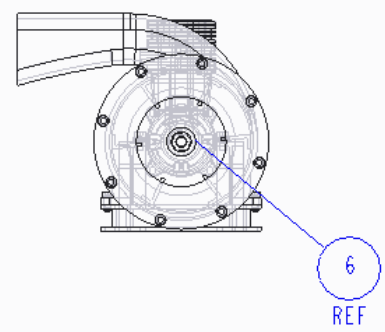
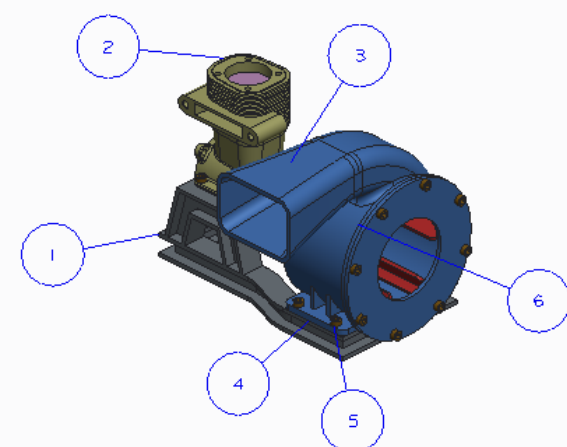


Build process propagates attributes to Find Number on Part Structure / BOM

Number	Name	Version	Find Number	Quantity	Un
000000174	frame.prt	A.1 (Design)	1	1	ea
000000170	blower.asm	A.1 (Design)	4	1	ea
000000166	engine.asm	A.1 (Design)	2	1	ea
000000164	engine_screw.prt	A.1 (Design)	3	4	ea
000000163	nut.prt	A.1 (Design)	6	1	ea
000000161	blower_screw.prt	A.1 (Design)	5	4	ea

## Drawing and Windchill BOM are in Sync

Identity ▲	Find Number
0000000129, ac-40.asm, Demo Organization, A.1 (Design)	
0000000122, blower_screw.prt, Demo Organization, A.1 (Design)	5
0000000124, blower.asm, Demo Organization, A.1 (Design)	4
0000000132, nut.prt, Demo Organization, A.1 (Design)	6
0000000133, engine.asm, Demo Organization, A.1 (Design)	2
0000000135, engine_screw.prt, Demo Organization, A.1 (Design)	3
0000000136, frame.prt, Demo Organization, A.1 (Design)	1



No.	Name
1	FRAME
2	ENGINE
3	ENGINE_SCREW
4	BLOWER
5	BLOWER_SCREW
6	NUT

# Ability to drive Windchill Find Number or Line Number from CAD BOM

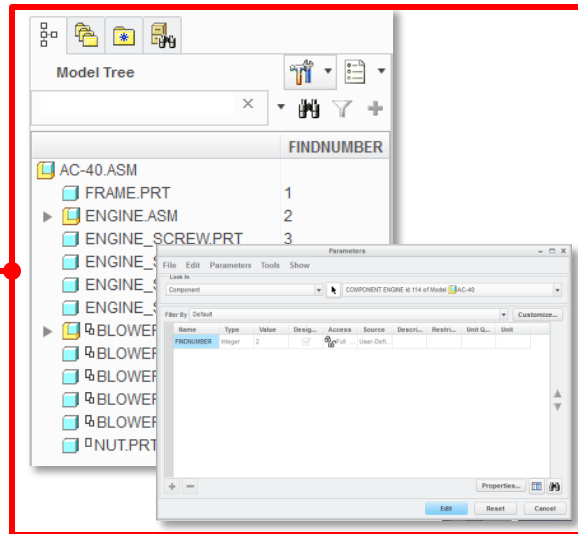
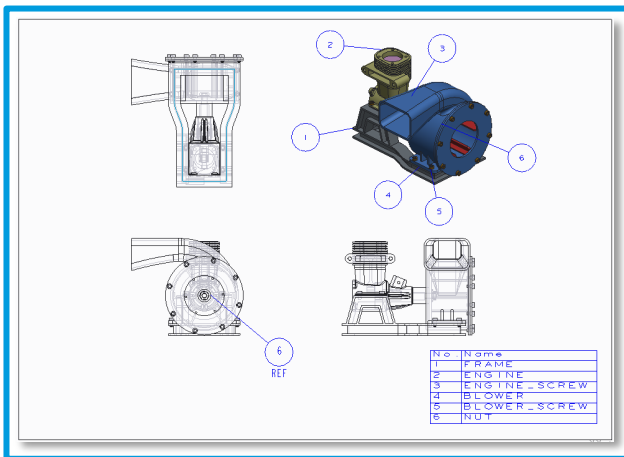
## Managing and Maintaining the values with Creo

Propagated to drawings

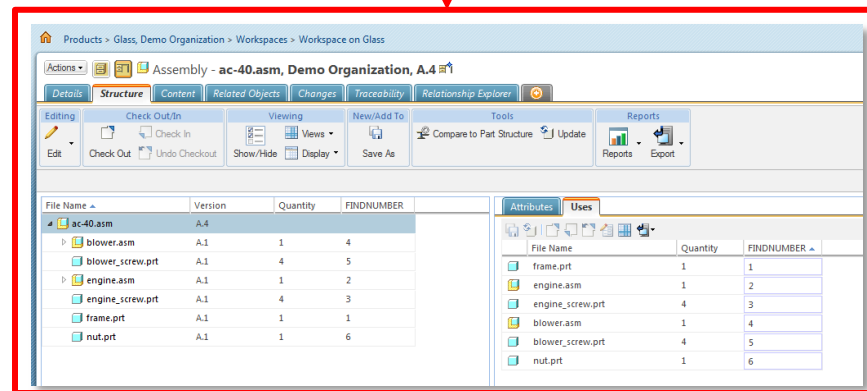
Edit Values

Edit Values

Build



Identity	Find Number
000000129, ac-40.asm, Demo Organization, A.1 (Design)	
000000122, blower_screw.prt, Demo Organization, A.1 (Design)	5
000000124, blower.asm, Demo Organization, A.1 (Design)	4
000000132, nut.prt, Demo Organization, A.1 (Design)	6
000000133, engine.asm, Demo Organization, A.1 (Design)	2
000000135, engine_screw.prt, Demo Organization, A.1 (Design)	3
000000136, frame.prt, Demo Organization, A.1 (Design)	1



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