

CORENA Company Presentation

Making Mechanics more Efficient with 3D Animated Graphics and Interactive Job Cards



**Presentation for S1000D User Forum
Vienna September 2013**

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- CORENA introduction
- CORENA S1000D Work Order Solution
- CORENAs engagement with Norwegian Rail (NSB)

CORENA Vision



- Wanted by the best customers
- Wanted by the best partners
- Wanted by the best employees

CORENA Mission



- We shall add value to our customers' technical information processes
- We shall develop user friendly and adaptable COTS based solutions
- We shall provide outstanding services and customer support
- We shall offer the world's most experienced team of domain experts
- We shall be a global, innovative, an inspiring workplace

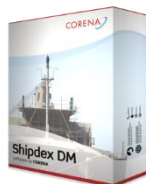
About CORENA

BUSINESS

- Software products development
- Markets:
 - ✓ Aerospace (Commercial and Defence)
 - ✓ Defence (Land and Sea)
 - ✓ Commercial Marine
 - ✓ Rail
 - ✓ Energy and Oil & Gas (emerging)
- Members of standardization committees

PRODUCTS & SERVICES

- Commercial-Off-The-Shelf Products and Services for production and usage of Technical Life Cycle information, focusing on standards
 - ✓ ASD/AIA/ATA S1000D
 - ✓ ATA iSpec 2200
 - ✓ SHIPDEX



ORGANIZATION

- Established in 1991
- Employees: ~90 + 25 consultants
- ISO 9001:2010 Certified
- NATO Security Clearance



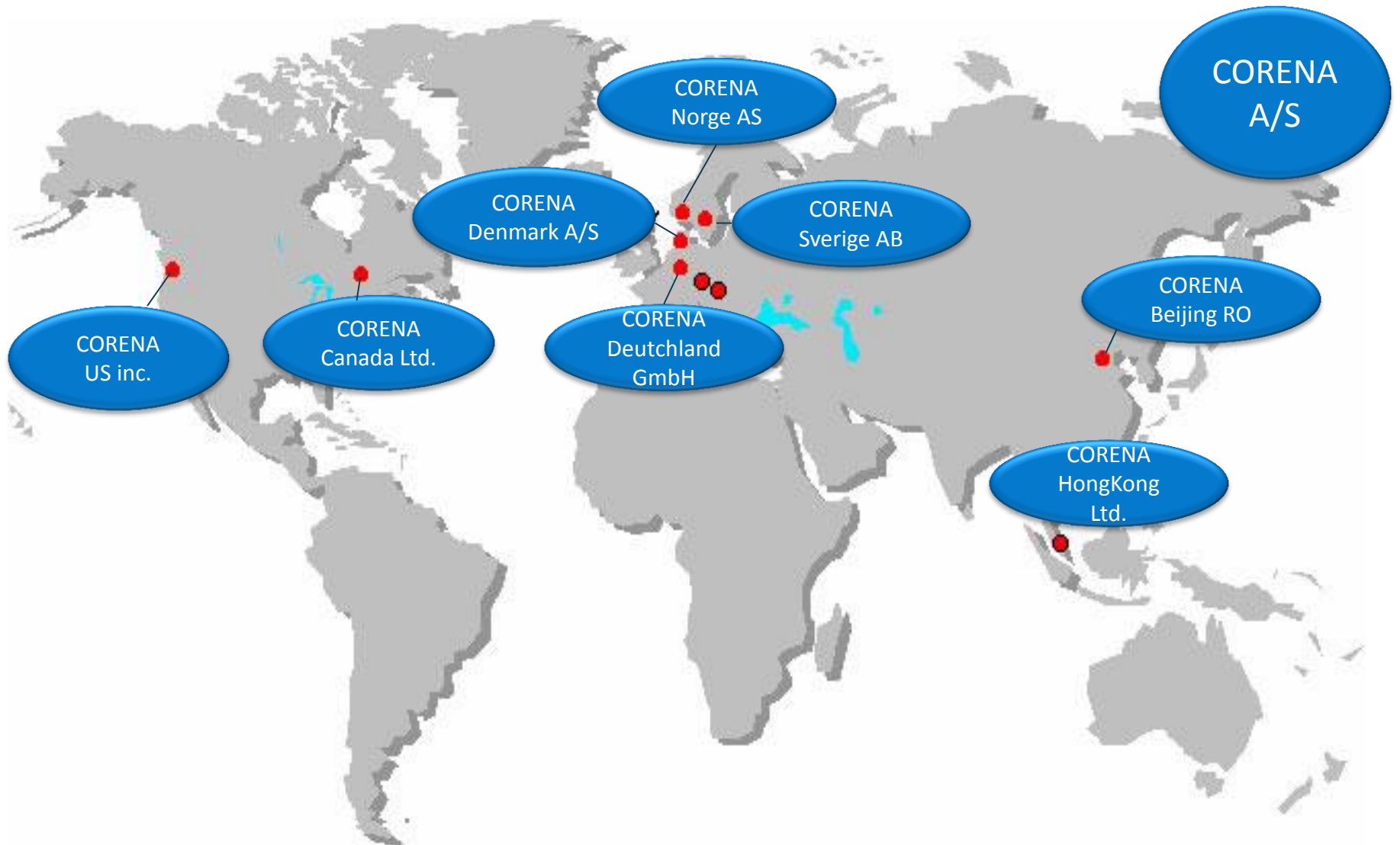
LOCATION

- Headquartered in Denmark
- Offices in 8 countries
- Partners in 10 countries

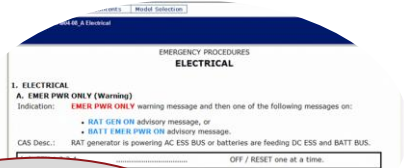
CLIENTS

- Never lost a client in 20 years
- Typical clients include:
 - ✓ Bombardier Aerospace
 - ✓ Rolls-Royce
 - ✓ Goodrich Aerostructures
 - ✓ Pratt & Whitney
 - ✓ COMAC
 - ✓ British Airways
 - ✓ Thales
 - ✓ Swedish Defence
 - ✓ Danish Defence
 - ✓ Norwegian Defence
 - ✓ Patria
 - ✓ BAE Systems

CORENA Locations



Solution Vision «The Intelligent Information Console»



Fault Isolation



Simulation



Parts Catalog



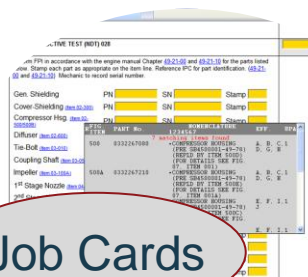
Training



Procedures



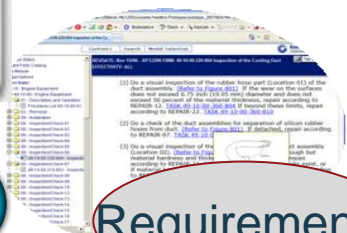
Job Cards



Work Scoping



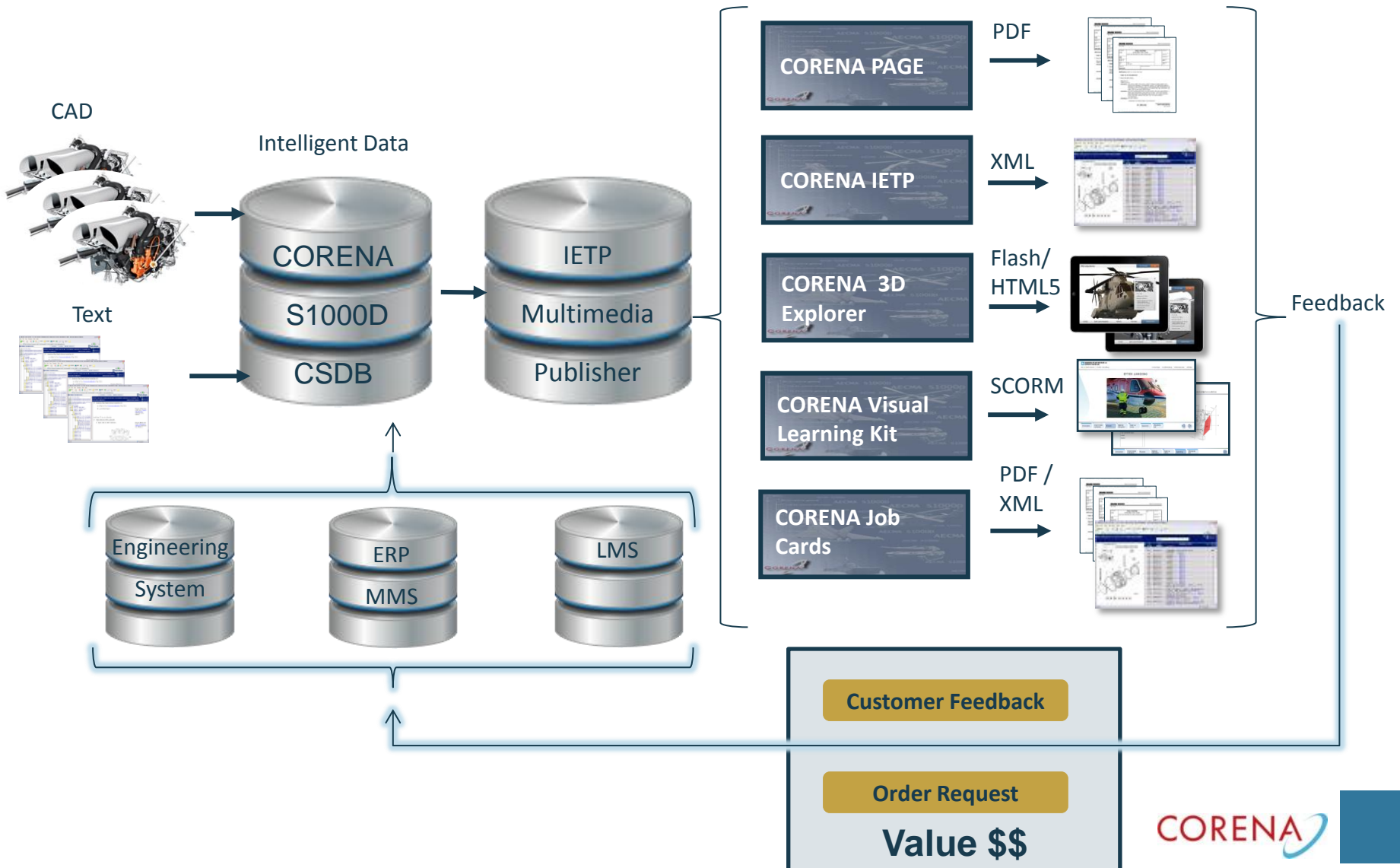
Requirements



Solution available

Solution being productized

Publishing intelligent information – and feedback

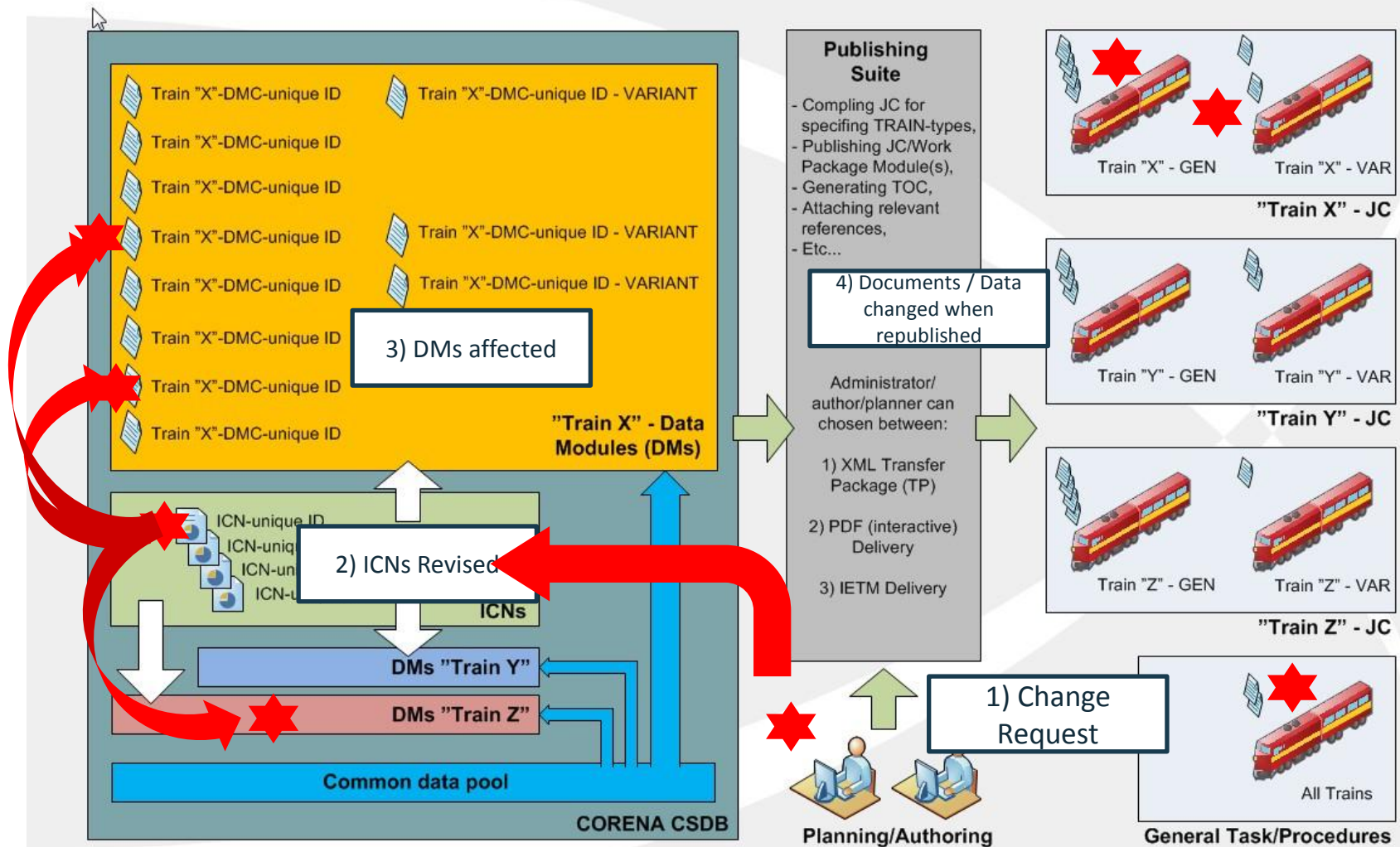


1

CORENA Engagement with NSB(Norwegian Rail)

- Solution scenario
- CORENA solution for job cards
- Conversion of 15 000 work instructions to S1000D
- Integration to SAP
- Electronic Parts Catalogue (3D and 2D)

Maintaining Data in CORENA CSDB



Managing Job cards with SAP

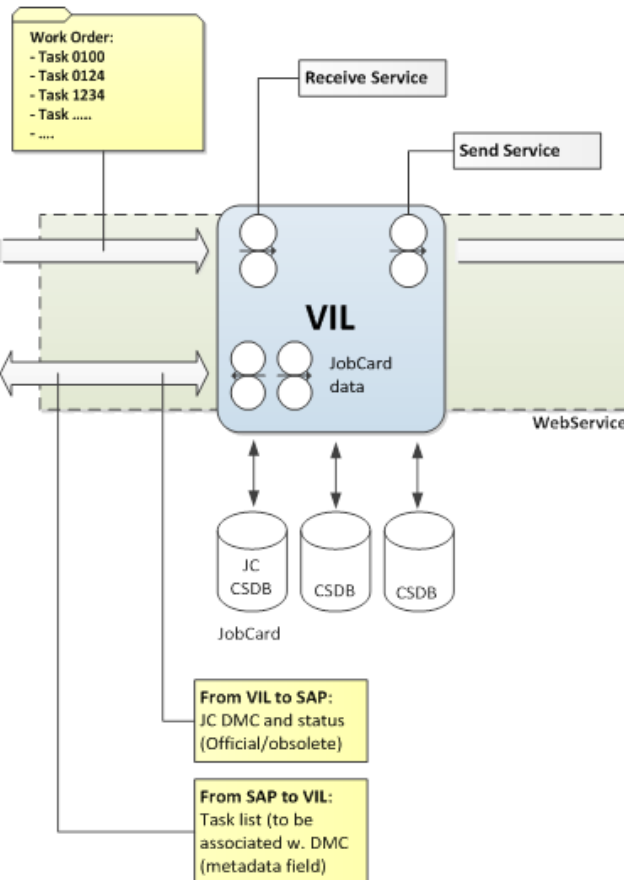
Maintenance Programs:

- Preventative,
- Corrective
- Ect...



Maintenance triggers:

- Cycles,
- Operating hours,
- Calendar time,
- Ect...



Recent Order List	Work Order
500003222 10355 Corena	Order ID: 500003213
500003211 Corena test 005	Description: 10355 - test printing #5
500003210 10355 - test printing #3	
500003209 10355 - test printing #2	
500003213 10355 - test printing #5	
500003207 10355 - test printing	
42 10355 Test	
1 10000 kilometer se	
500003188 test	
500003187 test	

Operation no	Operation Description	Instruction References
20	KO LADEKONTAKTOR	WLAB2-A-03-05-01-02A-913A
30	REN RØYKDETEKTOR	WLAB2-A-03-03-02-02A-300A
40	FTE BRANNALARM	WLAB2-A-06-02-05-01B-300A
50	KO KONTAKTOR VARMFLUFTVENTILAJON	WLAB2-A-04-03-09-01D-310A
60	KO VARMEKABEL VANNRØR	WLAB2-A-06-02-05-02A-920A
		WLAB2-A-05-06-16-01B-300A
150	MÅL VOLTETER (LADESPENNING)	WLAB2-A-01-08-05-01A-300A
		WLAB2-A-01-08-01-01A-300A
160	REN FILTER SIDEUTGANGSDØR	WLAB2-A-06-03-01-01A-300A
		WLAB2-A-03-12-17-02A-920A

500003213: 10355 - test printing #5

30: REN RØYKDETEKTOR

Kontroll av avstand mellom sideanslag b

Kontroll

2.1 Kontroll av avstand mellom sideanslag i vognkasse

- For grensestille - se tegntr ARV LATERAL SUSPENS
- Måke målt mål på sum av lag (logge) er MAX 54 mm
- Overvåkings dette mål by (tykke) i senterstapp

40: FTE BRANNALARM

Kontroll av buffere (fjærvirkning og s

Kontroll

3.1 Kontroll av buffere (fjæ

- Buffere og fjærvirkning
- eller andre test dele
- Kontroller manglende end
- Kontroll av test for bytt i 2 måneder, legges bytt i
- Sikkerhetsgrense, kontroll
- Ikke test stikk - test manglende vognende kuttet trykkes i
- Grense for drøying er etter Måke 7 mm
- Måke stappe på buffere

150: MÅL VOLTETER (LADESPENNING)

Kontroll av stigrinn

Kontroll

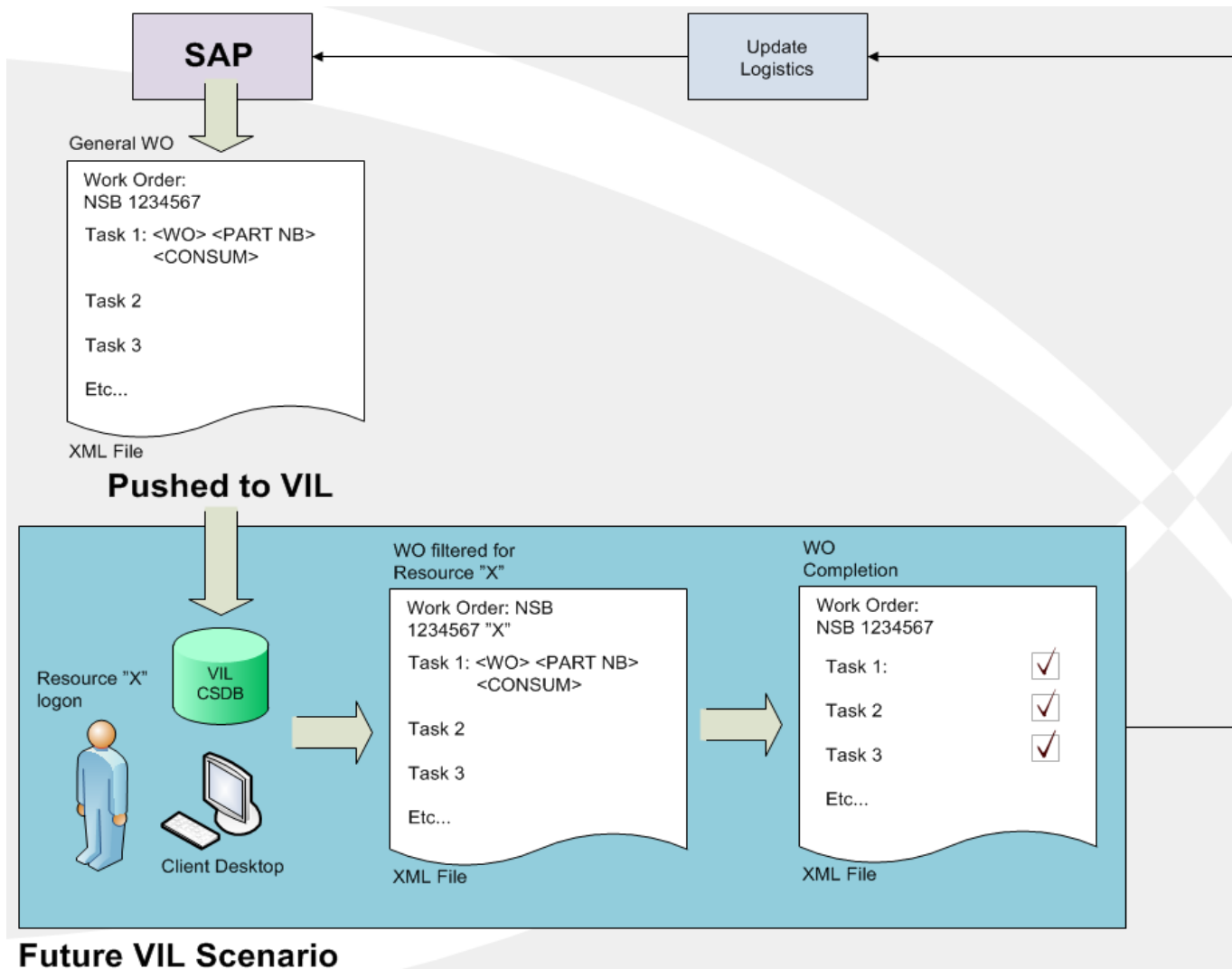
7.1 Kontroller plombering av nødåpner for sideutgangsdør

- Kontroller at plombering ikke er brutt

8.1 Kontroll av stigrinn

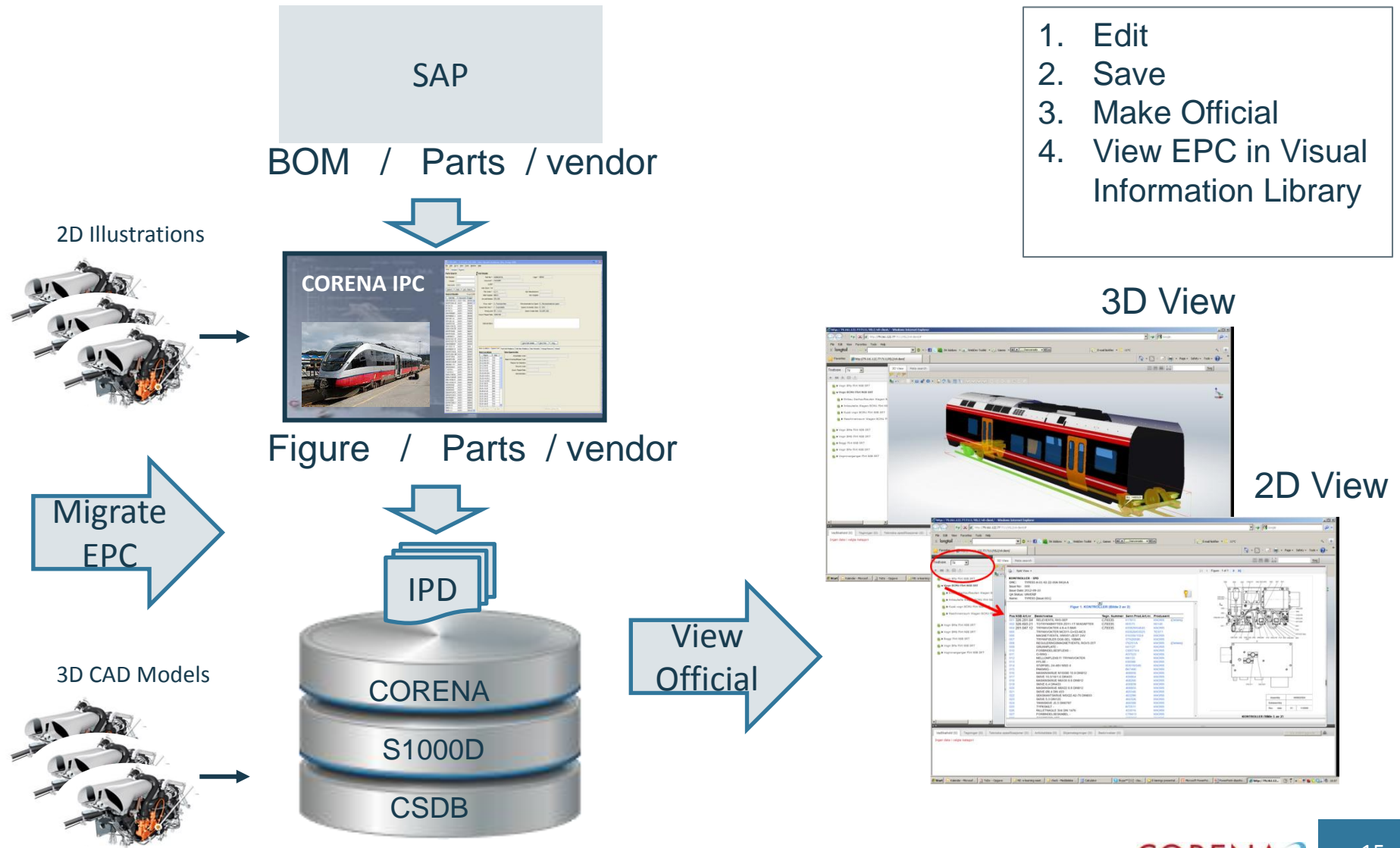
- Kontroller at stigrinn er i orden, godt festet og uten skade kanten og grader
- Kontroller at gul kartmerking er til stede og godt vedlikeholdt

Workflow Scenario



1 Solution overview – EPC (Electronic Parts Catalogue)

Solution overview – using VIL



Solution: EPC end user via Visual Information Library (3D)

The screenshot displays a 3D CAD environment with a purple train chassis model. The interface features a top toolbar, a left sidebar with a material list, and a bottom table of material data. A red circle highlights the 'Materiell' dropdown menu in the top left, and a blue box highlights the 'Choose traintvne' button in the top right.

Material List (Left Sidebar):

- rt NSB SRT
- asse BMa/BMb
- al Flirt NSB SRT vogn BMa
- lontering elektrokomponenter vogn BMa
- lontering førerrom Flirt NSB SRT
- åbygg frontdel Flirt NSB SRT
- 1 - Montering gulvkar, påbygg frontdel
- .F.4.11-1 - gulvplate
- 2 - Montering frontkabin, påbygg frontdel
- 3 - Montering vinduer førerstand
- 6 - Montering frontskjært, påbygg frontdel
- 8 - Montering vindusviskeranlegg, påbygg
- 9 - Installasjon frontkobling påbygg kjø
- 10 - Innbygging kollisjonsmodul/kollisjo
- 11 - Montering skinnerydder
- .F.4.11-1 - skinnerydder
- .F.4.11-2 - crashelement
- .F.4.11-3 - festebrakett for skinnerydder
- .F.4.11-4 - bolt for festeandordning til skir
- .F.4.11-5 - underlagsskive i stål D50xd3C
- .F.4.11-6 - R-splint

Material Data Table (Bottom):

Velg	Strukturkode	Materiell	Lev. Art nr	Beskrivelse	Sann leverandør	San	NSB No.	Materiell
<input type="checkbox"/>	B.F.4.11-3	-	10006631	festebrakett for skinnerydder	-	n/a	-	74
<input type="checkbox"/>	A.F.4.11-3	-	10006631	festebrakett for skinnerydder	-	n/a	-	74

Solution: EPC end user via Visual Information Library (2D)

Choose traintype

74

KONTROLLER - IPD
DMC: TYPE93-A-01-42-22-00A-941A-A
Issue No: 000
Issue Date: 2012-09-10
QA Status: UNVERJF
Name: TYPE93 (Issue:001)

Figur 1. KONTROLLER (Bilde 2 av 2)

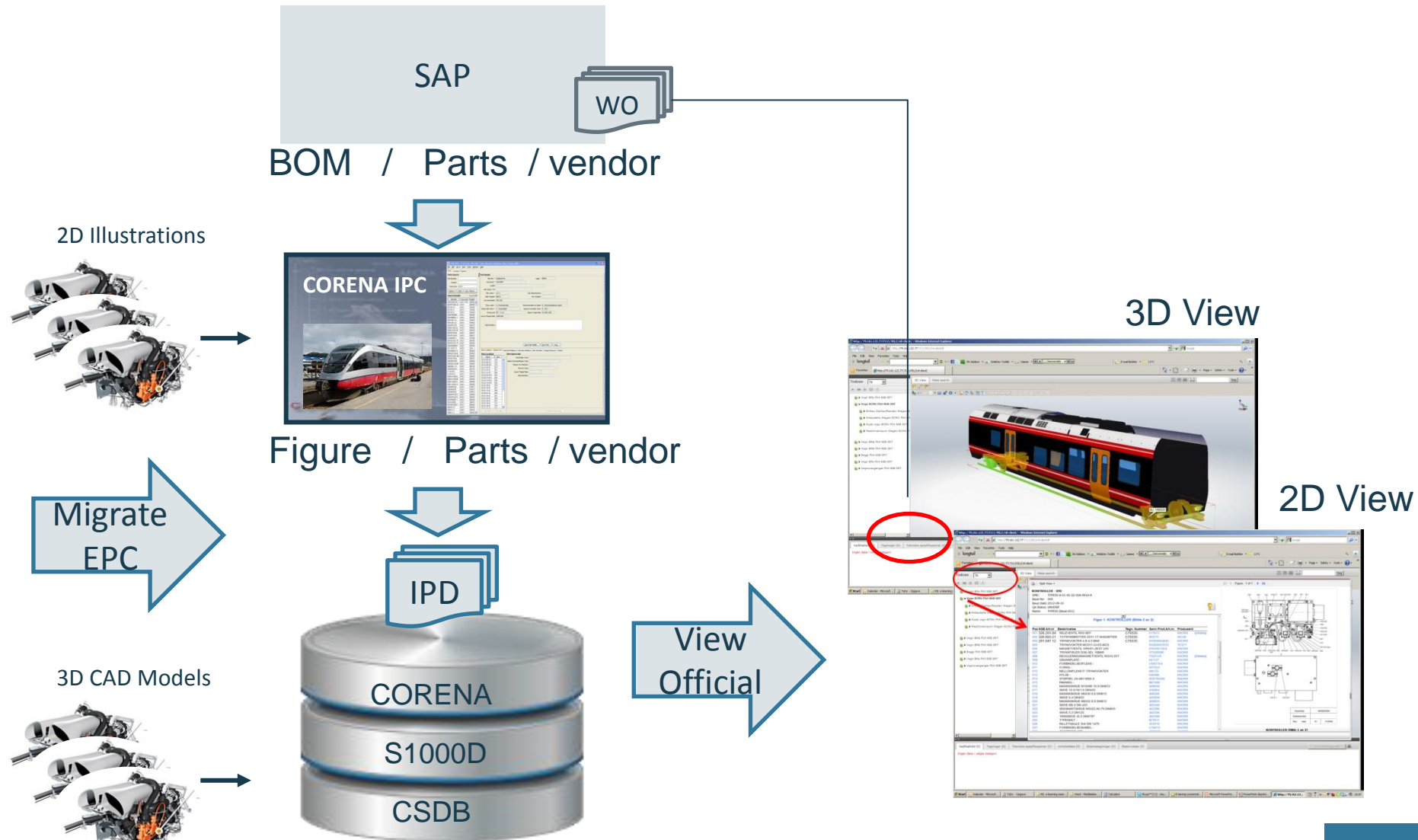
Pos	NSB Art.nr	Beskrivelse	Tegn. Nummer	Sann Prod.Art.nr.	Produsent
001	326.281.04	RELEVENTIL RH3-5EP	C78335	I117913	KNORR (Details)
002	326.693.21	TOTRYKKBRYTER ZD11-1T M/ADAPTER	C78335	I93575	N0140
004	281.047.12	TRYKKVOKTER 4.8-4.5 BAR	C78335	I35829/04845	KNORR
005		TRYKKVOKTER MCS11-G+S3-MCS		I35829/03525	TEST1
006		MAGNETVENTIL WMV01-ZEST 24V		I16356/1024	KNORR
007		TRYKKFØLER DG6-SEL 10BAR		STN26690	KNORR
008		REGULERINGSMAGNETVENTIL RGV3-25T		I76251/A	KNORR (Details)
009		GRUNNPLATE -		I141127	KNORR
010		FORBINDELSSEFLENS -		C68574/4	KNORR
011		O-RING -		A37523	KNORR
012		MELLOMFLENS F/ TRYKKVOKTER		I98125	KNORR
013		HYLSE -		I39398	KNORR
014		STØPSEL 24-48V MSD 4		I83018/048	KNORR
015		PAKNING -		B67490	KNORR
016		SKIVE 10,5/18/1,6 DIN435		468958	KNORR
017		MASKINSKRUE M5X30 8.8 DIN912		450864	KNORR
018		SKIVE 6,4 DIN433		450859	KNORR
019		MASKINSKRUE M8X22 8.8 DIN912		468955	KNORR
020		SEKSKANTSKRUE M5X22 A2-70 DIN933		465346	KNORR
021		SKIVE Ø8,4 DIN 433		463290	KNORR
022		TANNSKIVE J5,3 DIN6797		462326	KNORR
023		TYPESKILT -		466588	KNORR
024		RILLETNAGLE 3X4 DIN 1476		B72511	KNORR
025		FORBINDELSKABEL -		453016	KNORR
026				C79413	KNORR
027					
028					

KONTROLLER (Bilde 1 av 2)

Navigate

Start | Kalender - Microsof... | ToDo - Oppgave | RE: e-learning meet... | check - Meddelelse... | Calculator | Skype™ [11] - clau... | E-lærings presentat... | Microsoft PowerPol... | PowerPoint-classho... | http://79.161.12... | 18:07

Solution overview – using VIL– Work Order / Job Cards



Solution: Work Orders / Job Cards

NSB

Order Result List

Search options

Revision

Start revision

Train type

99

99891 NSB Jobcard Training 11

99

99890 NSB Jobcard Training 10

99

99889 NSB Jobcard Training 9

99

99888 NSB Jobcard Training 8

99

99887 NSB Jobcard Training 7

99

99886 NSB Jobcard Training 6

99

99885 NSB Jobcard Training 5

99

99883 NSB Jobcard Training 3

99

99881 NSB Jobcard Training 1

99

99884 NSB Jobcard Training 4

about:blank

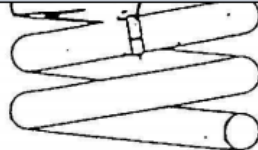


Fig 1

For klassifisering, se dokument [DT-70-GEN-0010 KLASSIFISERING AV SKRUEBÆREFJÆRER PÅ NSBS MATERIELL.](#)

Merk
Fjærene utstyres med bånd av aluminium der gruppe og art. nr. innstemples.

Ved revisjoner eller fjærbytte skal det for sekundærfjærer på samme boggi bare monteres fjærer som ligger innenfor samme gruppe. Akselkassefjærene pr. hjulsats må tilhøre samme gruppe.

WLAB2-A-03-12-17-02A-920A-A

Bytte av bremseslanger på boggi

Bytte

Dette dokumentet er konvertert automatisk fra ProArc, hvis du finner innholdet ufulstendig/feil sjekk følgende document Ved feil kontakt NSB dokumentavdelingen tekdok@nsb.no

3.1 Bytte av bremseslanger på boggi

- Bremseslanger (pos.37) i boggien byttes.
- Slanger (pos.30) mellom vognkasse og boggier byttes.

WLAB2-A-04-04-10-02A-920A-A

Summary

- We have used 3D models and S1000D data for multiple purposes, including manuals, work processes and dynamic job cards
- Data are prepared for the next step of E-Learning
- Planners and Authors are now in control of maintaining the data in an easy way
- Mechanics are expected to become much more efficient with intuitive access to product variant specific 2D/3D and animated illustrations and data
- All relevant information available in one tool



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