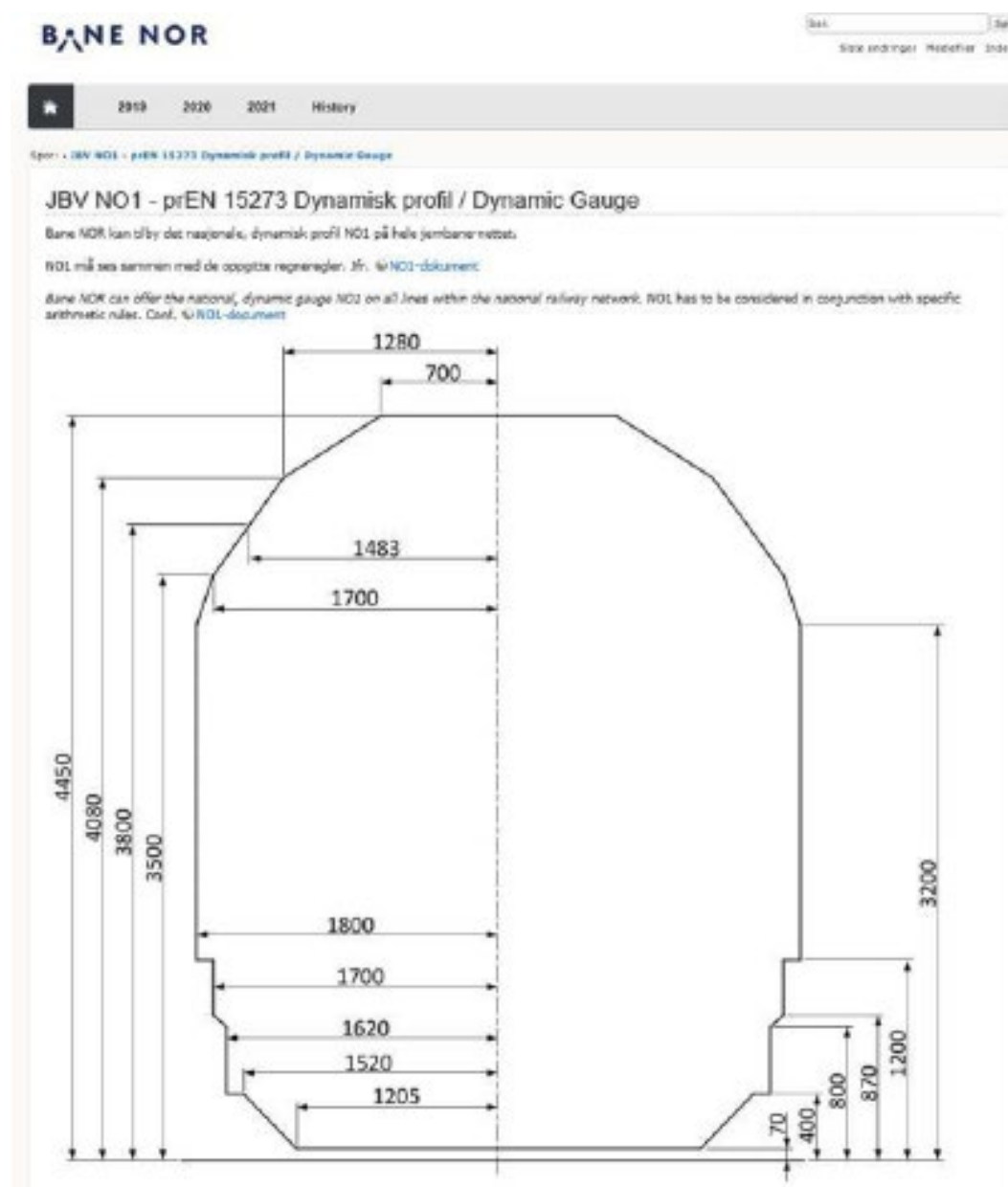


Profile mal NO 1, Track cleaner profile, Theoretical wagon with curve deflection and comparison between a cargo tractor with attached equipment and a theoretical wagon.

DYNAMIC PROFILE

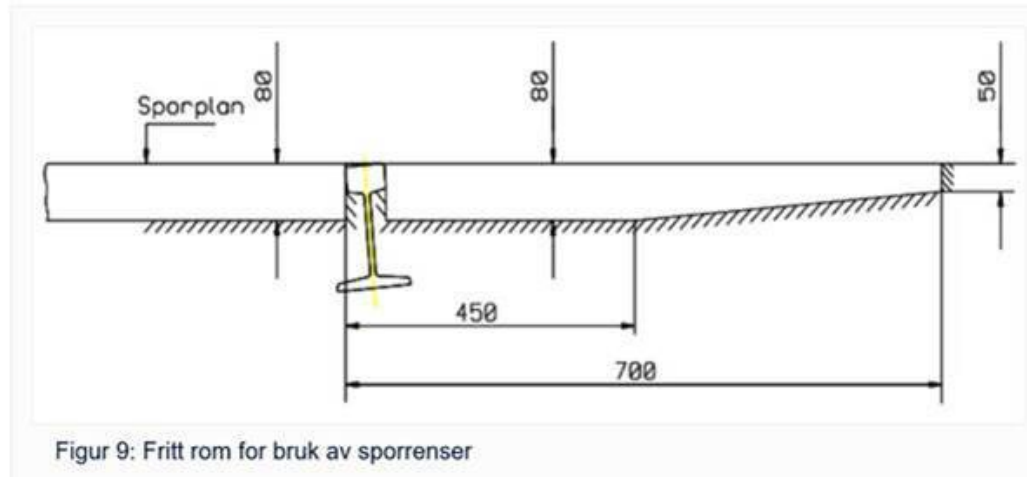
http://networkstatement.jbv.no/doku.php?id=vedlegg:jbv_no1_-_pren_15273_dynamisk_profil



TRACK CLEANER PROFILE

https://trv.jbv.no/wiki/Underbygning/Prosjektering_og_bygging/Profiler_og_minste_tverrsnitt#Hensyn_til_bruk_av_sporrenser

a) I spor hvor det forutsettes bruk av sporrenser skal det være et fritt rom som angitt i Figur 9

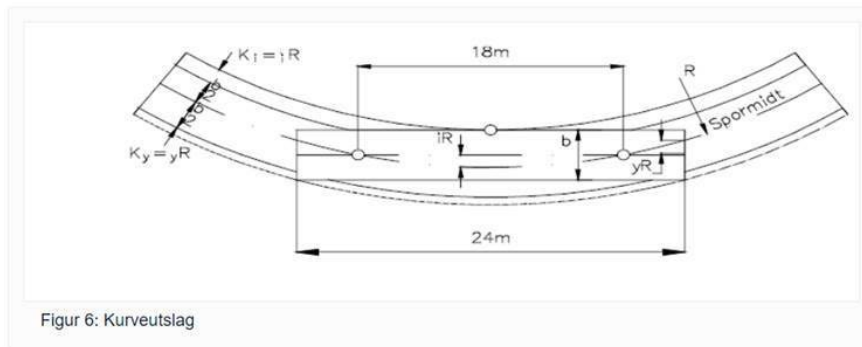


THEORETICAL WAGON

https://trv.banenor.no/wiki/Underbygning/Prosjektering_og_bygging/Profiler_og_minste_tverrsnitt#Kurveutslag

2.3 Kurveutslag

Minste tverrsnittsbredde varierer med sporets kurvatur på grunn av det ekstra plassbehov som oppstår når lange vogner befinner seg i kurver. Alle breddemål økes med kurveutslaget i sirkelkurver, overgangskurver og på rettløp i nærheten av kurver. Kurveutslagene er forskjellige for kurvens indre og ytre side. Størrelsen av kurveutslagene er fastlagt på grunnlag av en teoretisk vogn med lengde 24 m og akselavstand 18 m.

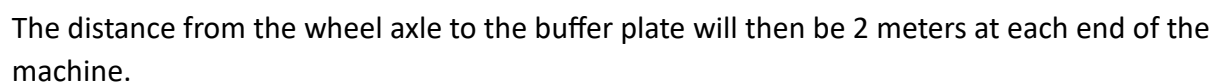


a) Kurveutslag mot plattformer og lasteramper skal beregnes som vist i [Overbygning/Prosjektering/Plattformer og spor på stasjoner](#)

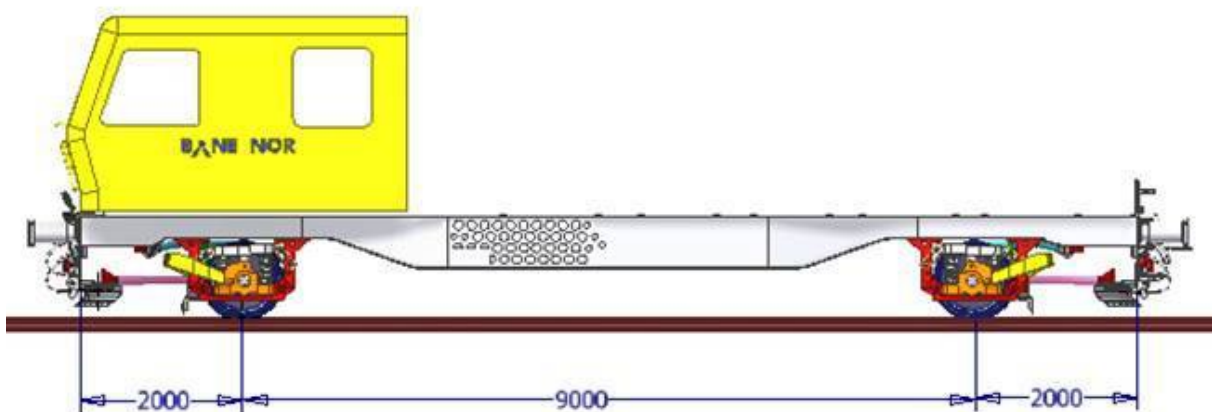
Below are three links with corresponding clip art images:

- Dynamic profile NO1
- Track cleaner profile
- Theoretical wagon with length 24 m and bogie centerdistance 18 m (LTR-17).

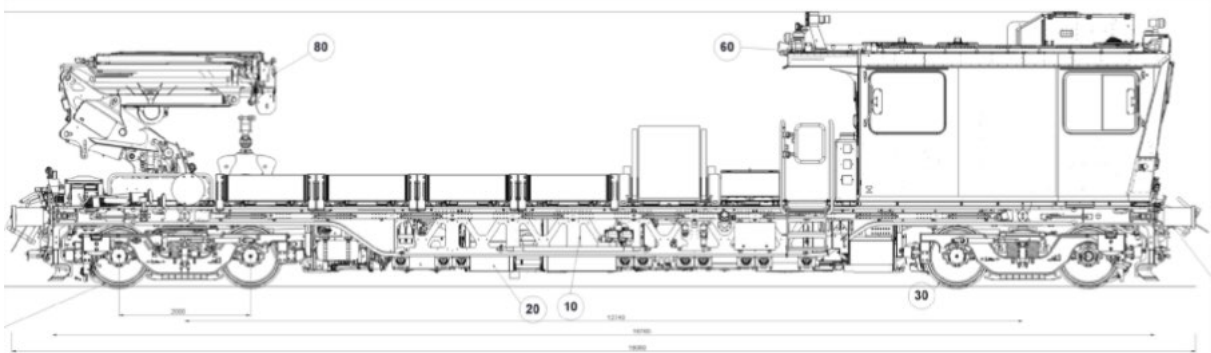
LT11:



LTR-17:



LT18:



At each end of the buffer plates, a reverse Volvo HK mount is welded for mounting a snow blower, switch broom and plow, etc. Ref. Chap. E01-9.

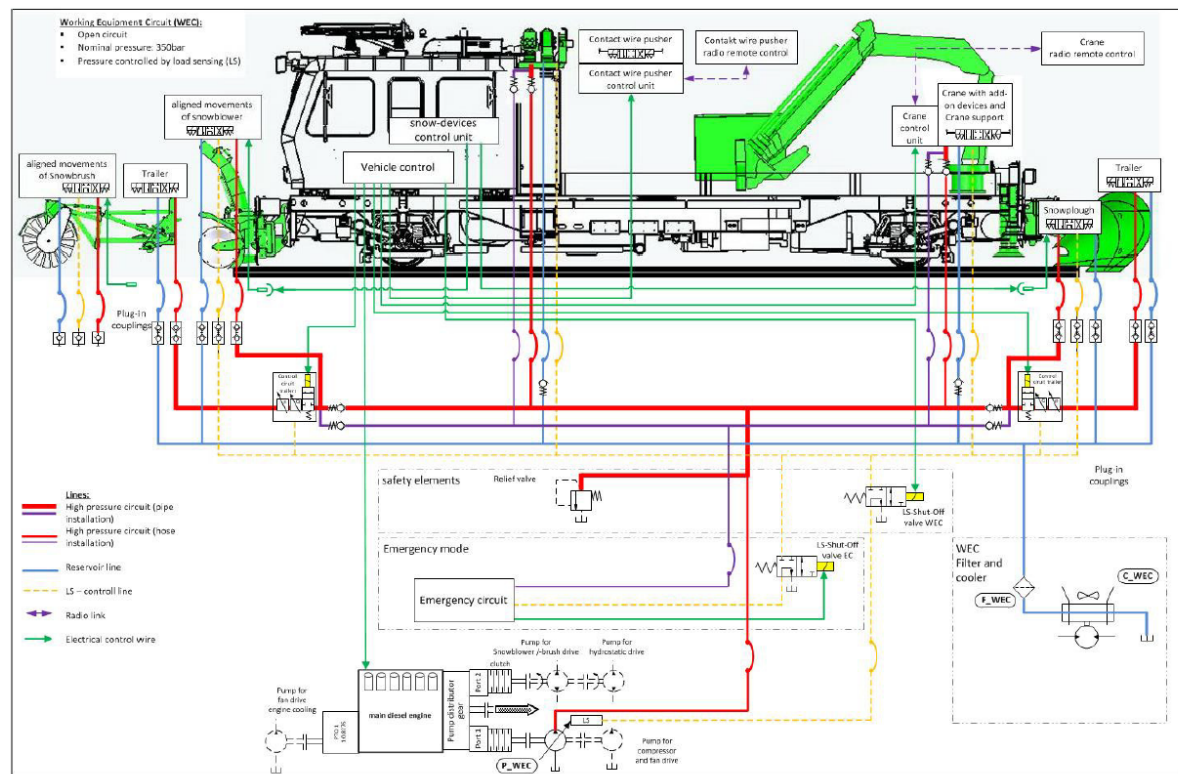
When mounting snow equipment that has a length exceeding 1 meter, the overhang will be more than 3 meters.

With an overhang of more than 3 meters, and fully utilized NO1 profile during transport, the curve deflection in a curve with a radius of 160 meters must not be more than the theoretical wagon.

The curve deflection of the LTR17 with a wheelbase of 9 meters is less than the theoretical wagon with its 18 meters but commuting gives in return a greater deflection with a shorter wheelbase.

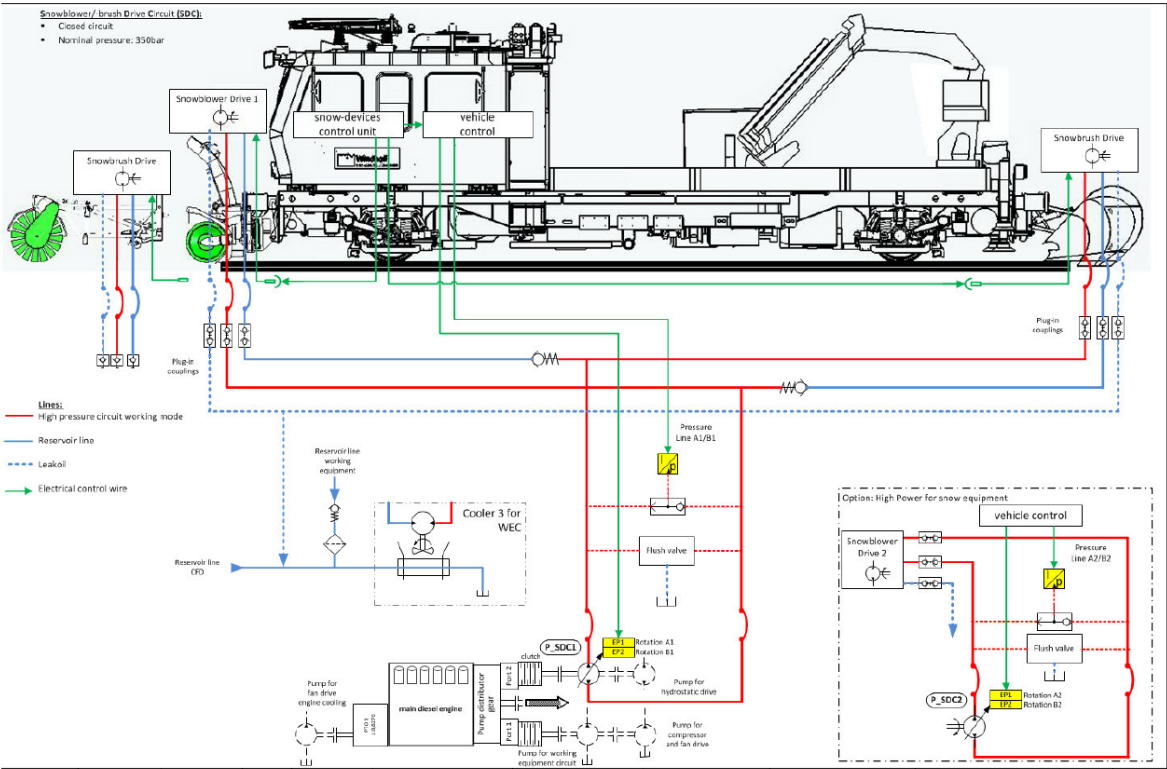
When clearing snow in the track cleaner profile under the rail top, the recess for the rail must provide clearance all the way down to the curve radius of 160 meters.

Principle diagram working hydraulics



Conceptual diagram of the control oil circuit:

Principle diagram Hydrostatic system



Conceptual diagram of the hydrostatic drives:

Type of quick couplers used on machine

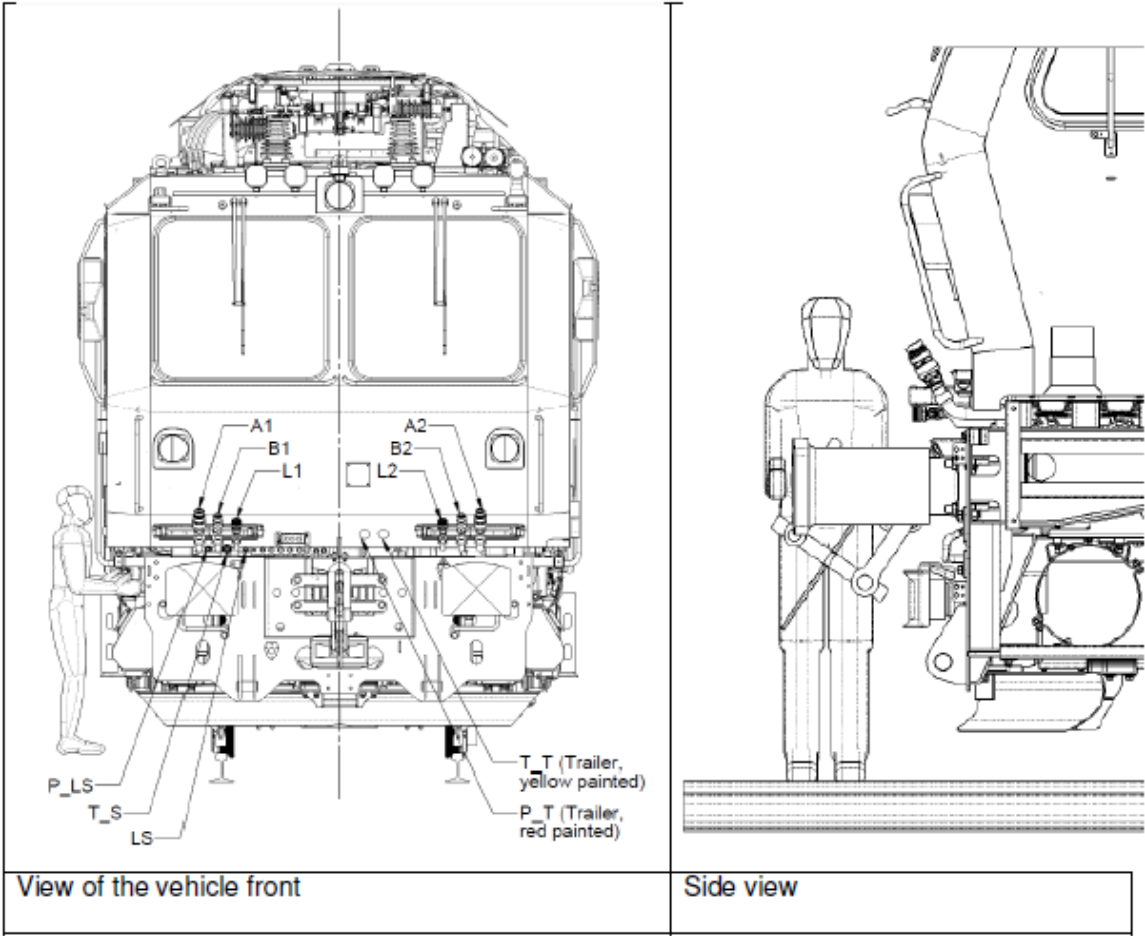
Hydraulic Circuit	Closing Caps	Notes
Control oil circuit winter equipment LS controlled		
P_LS	Stucchi VP-series, 3/4"	law VO
T	Tema 7500	law contract
Is	Tema 2500	
Control oil circuit trailer		
P_T	Argus 3/8", 8013 40840 Plug (Female) coated in red	law contract
T	Argus 3/8", 8013 40840 Plug (Female) coated in yellow	law contract
Closed (hydrostatic) hydraulic circuits, winter equipment (max. 315bar), 2		
A	Stucchi VP series, 1 1/4", 470bar	law VO
B	Stucchi VP series, 1 1/4", 470bar	law VO
L	Tema 10000	law contract

Location of quick-release couplings at the front.

All machines have couplings on the right side in the direction of travel. Some machines have double pumps and then quick couplings on both sides in the direction of travel.

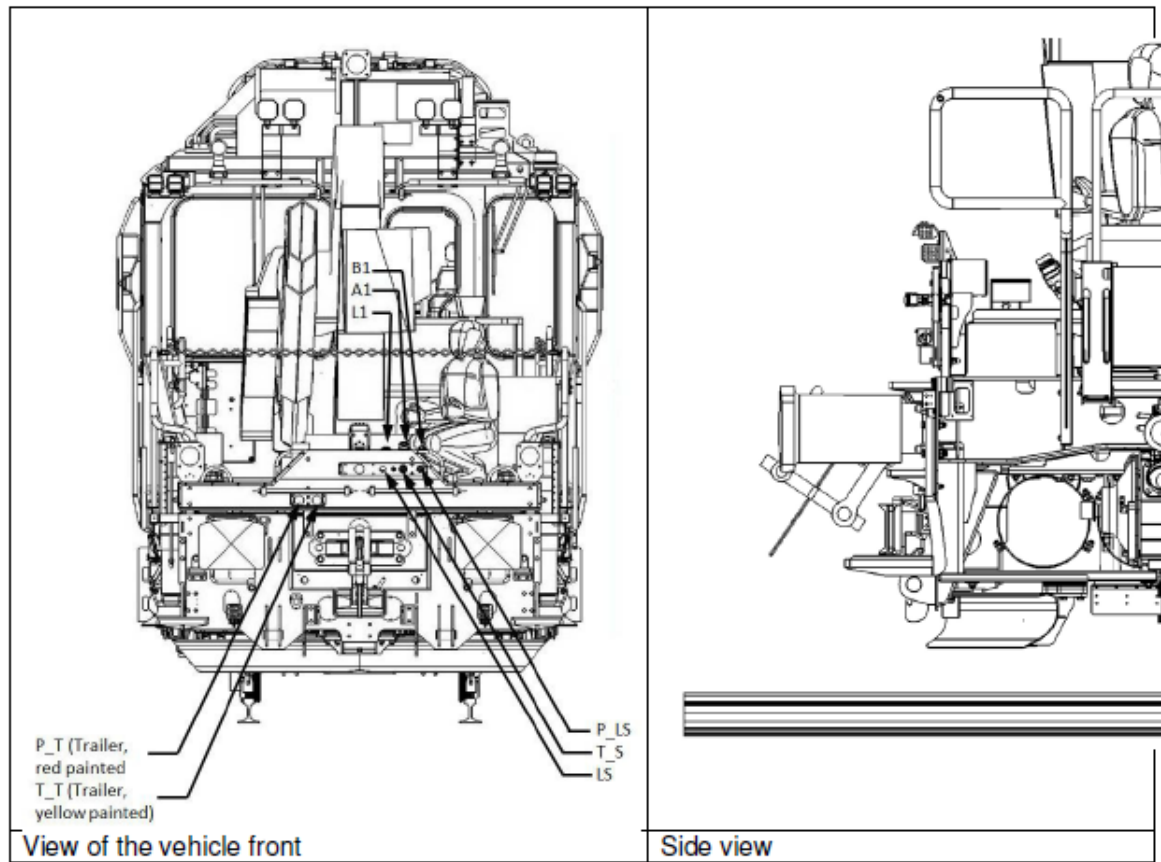
7.2.3. Arrangement of the Hydraulic Connection

Arrangement of the connector coupling on the side of the cabin:

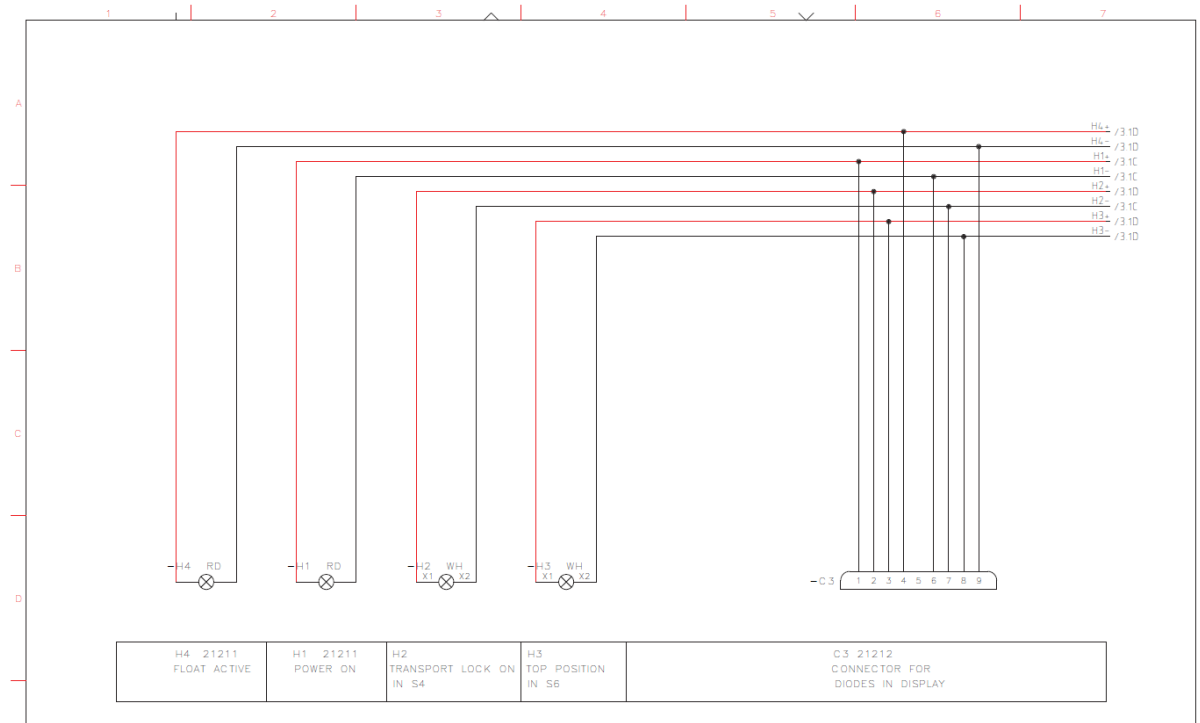
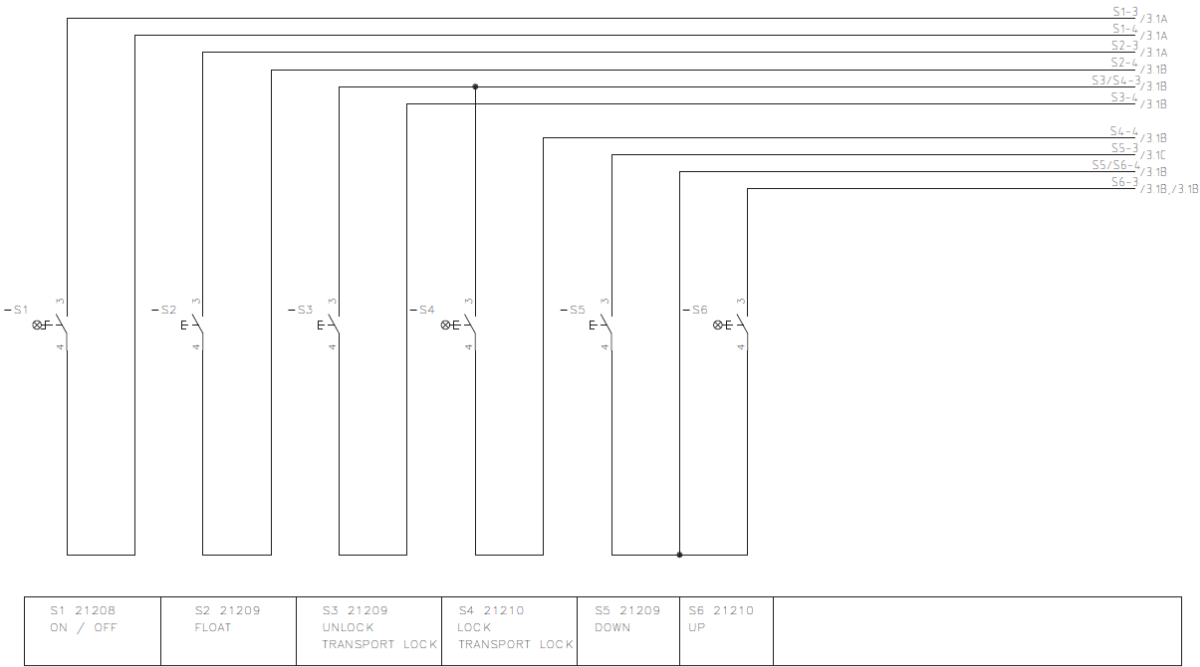


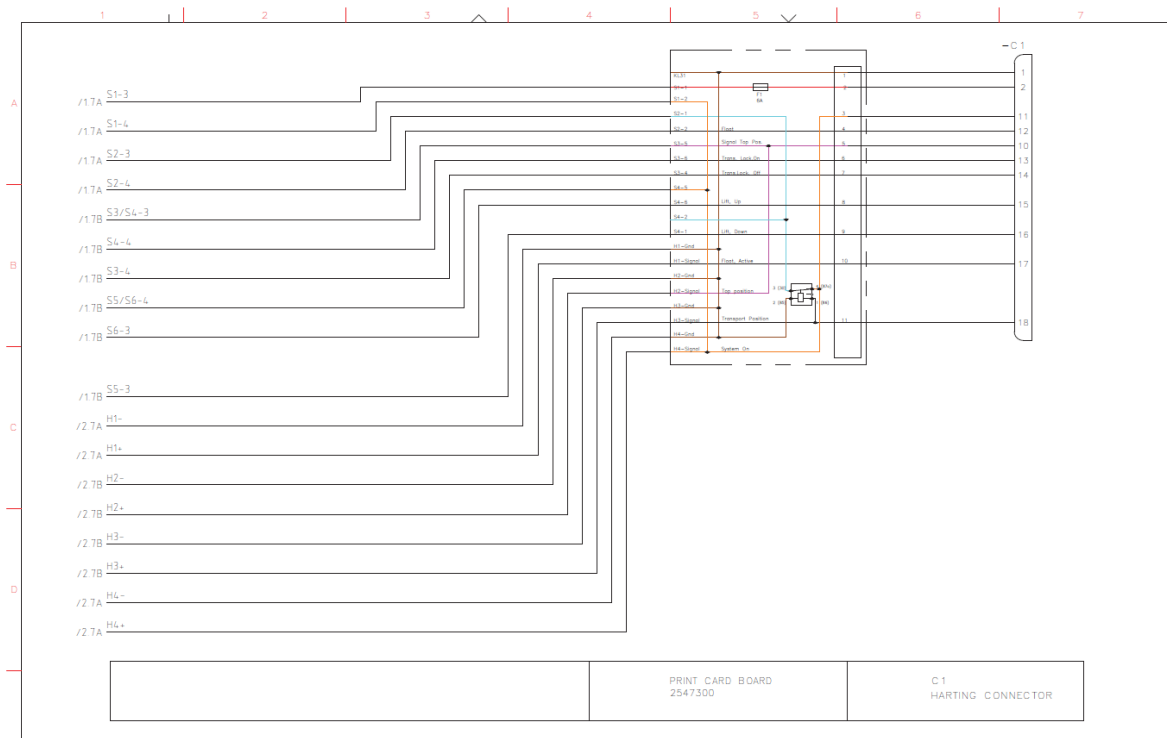
Location of quick couplers at the rear end of the machine.

Arrangement of the connector coupling on the side of the crane:



Electrical drawings over fixed panel at control desk 1 and continuation to Harting connector at the back of the machine.





Description of the machine's electrical system for connecting various types of snow equipment.

DESCRIPTION OF THE ELECTRICAL SYSTEM

Interface for the Snow equipment

Projekt: MPV-2-500 JBV

Projekt-/ Auftrags-Nr.: 101013615

Ersteller: PI-ET / V. Heckmann

Revisionsstand: 01
vom 24.07.2015

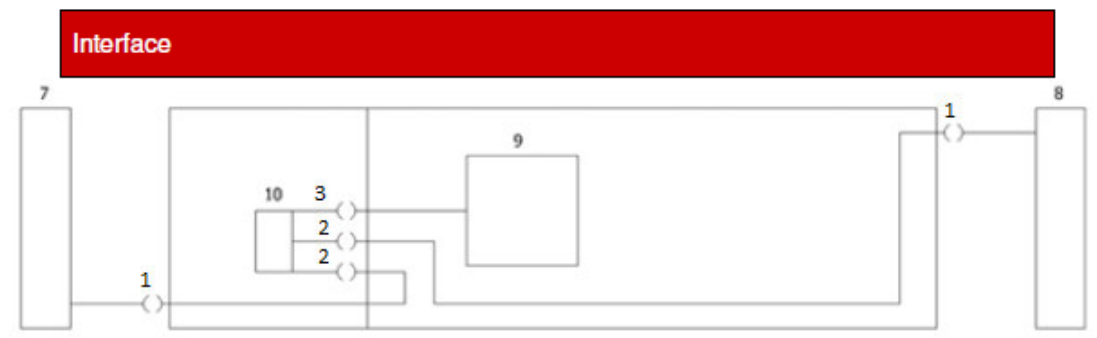


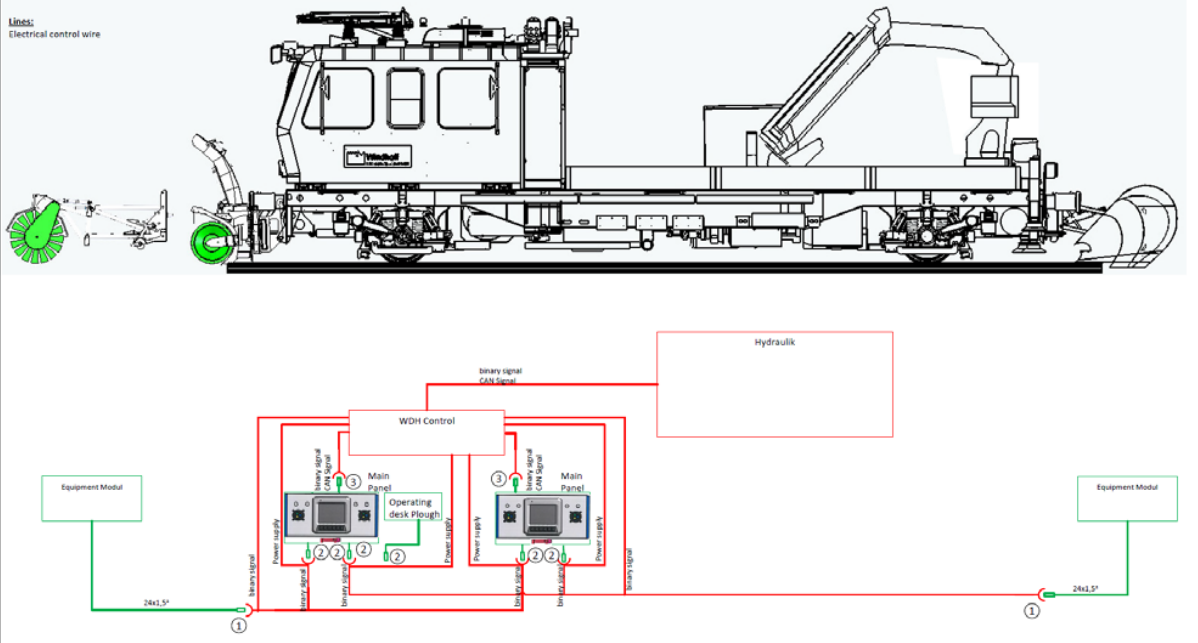
Figure 1

- | | |
|--------------------|--|
| Pos 1 ([1]) | Harting E24 female chassis connector on the vehicle and male hang connector on the equipment side. |
| Pos 2 ([2]) | Harting E24 female chassis connector on the WDH Control/Connectors [1] and male hang connector on Main Panel |
| Pos 3 ([3]) | Harting HAN Modular female chassis connector on the WDH Control and male hang connector on Main Panel |

All cables shall reach minimum 2 meters from the equipment and be according to figure 1

- | | |
|--------------------|--|
| Pos 7 and 8 | Additional equipment with all necessary hydraulic magnet valves mounted on the equipment. |
| Pos 9 | Hydraulic Pump aggregate remote controlled from Main panel |
| Pos 10 | Main Panel for operating of hydraulic aggregate, front- and rear mounted equipment. The Main Panel can be splitted, but shall have three separate cables to aggregate, front mounted equipment and rear mounted equipment. |

Lines:
Electrical control wire



Additional equipment to MPV

Standard coupling [1] between WDH Control, Main Panel /Panel Plough and mounted equipment

The cable shall be equipped with a Harting connector, Type E24:

Name	Order	Manufacturer
Tüll-geh HAN 24 HPR/Baugr 24 Schraub		HARTING
Sti-eins HAN 24ES/1-24pol.	0933 024 2616	HARTING
Socket-geh HAN 24 HPR/Baugr 24 Schraub	1940 024 1273	HARTING
Bu-eins HAN E 24-pol	0933 024 2716	HARTING

Red = Supplier Windhoff

Green = Supplier JBV

Wiring table

PIN	Signal	Signal direction	binary/ CAN	Description
1.	Supply 24VDC (-)	WDH Control >>> mounted equipment Modul	binary	Power Supply L-
2.	Supply 24VDC (+)	WDH Control >>> mounted equipment Modul	binary	The supply is protected with a 15A fuse
3.	Type of snow-equipment connected 1	mounted equipment Modul >>> Main Panel	binary	Signal by a code that indicate witch type of snow-equipment is connected.
4.	Type of snow-equipment connected 2	mounted equipment Modul >>>Main Panel	binary	
5.	Type of snow-equipment connected 3	mounted equipment Modul >>>Main Panel	binary	
6.	Type of snow-equipment connected 4	mounted equipment Modul >>>Main Panel	binary	
7.	1:1 Connection	mounted equipment Modul / WDH Control	binary	1: 1 connection for signals from the mounted equipment and the WDH Control
8.	Safety Signal (+)	WDH Control >>> mounted equipment Modul	binary	Power supply (+) for the Potential free contact «Safety Signal»
9.	Safety Signal (S)	mounted equipment Modul >>>WDH Control	binary	The Signal Transport position and Locking device connected in series.
10.- 24	1:1 Connection	mounted equipment Modul / Main Panel	binary	1: 1 connection for signals from the mounted equipment and the Main Panel

Standard coupling [2] between Connectors [1], WDH Control and Main Panel/Panel Plough

The cable shall be equipped with a Harting connector, Type E24:

Name	Order	Manufacturer
Tüll-geh HAN 24 B/Baugr 24 1-Längsbügel-Verriegelungs.		HARTING
Sti-eins HAN 24ES/1-24pol.	0933 024 2616	HARTING
Anbau HAN 24 B/Baugr 24 1-Längsbügel-Verriegelungs. [+1A]	0930 024 0304	HARTING
Sockel HAN 24 B/Baugr 24 1-Längsbügel-Verriegelungs. [+2B]	1930 024 1296	HARTING
Bu-eins HAN E 24-pol	0933 024 2716	HARTING

Red = Supplier Windhoff

Green = Supplier JBV

Wiring table

PIN	Signal	Signal direction	binary/ CAN	Description
1.	Supply 24VDC (-)	WDH Control >>> Main Panel/Panel Plough	binary	Power Supply L-
2.	Supply 24VDC (+)	WDH Control >>> Main Panel/Panel Plough	binary	The supply is protected with a 5A fuse
3.	Type of snow-equipment connected 1	mounted equipment Modul >>>Main Panel	binary	Signal by a code that indicate witch type of snow-equipment is connected.
4.	Type of snow-equipment connected 2	mounted equipment Modul >>>Main Panel	binary	
5.	Type of snow-equipment connected 3	mounted equipment Modul >>>Main Panel	binary	
6.	Type of snow-equipment connected 4	mounted equipment Modul >>>Main Panel	binary	
11.7 .	1:1 Connection1:1 Connection	Connectors [1] / operating deskConnectors [1] / operating desk	binarybina ry	1: 1 connection for signals from the mounted equipment and the operating desk1: 1 connection for signals from the mounted equipment and the operating desk
12.8 .	1:1 Connection1:1 Connection	Connectors [1] / operating deskConnectors [1] / operating desk	binarybina ry	1: 1 connection for signals from the mounted equipment and the operating desk1: 1 connection for signals from the mounted equipment and the operating desk
137. 9.	1:1 Connectionfree1:1 Connection	Connectors [1] / operating deskConnectors [1] / operating desk	binarybina ry	1: 1 connection for signals from the mounted equipment and the operating desk1: 1 connection for signals from the mounted equipment and the operating desk

7.	1:1 Connection	WDH Control / Main Panel	binary	1: 1 connection for signals from the WDH Control and the Main Panel
8.	1:1 Connection	WDH Control / Main Panel	binary	1: 1 connection for signals from the WDH Control and the Main Panel
9.	1:1 Connection	WDH Control / Main Panel	binary	1: 1 connection for signals from the WDH Control and the Main Panel
10.-24.	1:1 Connection	Connectors [1] / Main Panel	binary	1: 1 connection for signals from the WDH Control and the Main Panel

Standard coupling [3] between Main Panel and WDH Control

The cable shall be equipped with a Harting connector:

Name	Order	Manufacturer
Tüll-geh HAN 10 B/Baugr 10 1-Längsbügel-Verriegelungs.		HARTING
Gelenkrahm HAN f 3 Module/a-c	0914 010 0313	HARTING
DD-Quick Lock-Modul HAN/Stifteinsatz/12p./versilb.	0914 012 2634	HARTING
Crimp HAN/Stift/0,5 ² /vergol	0915 000 6303	HARTING
MegaBit-Modul HAN/Stifteinsatz/2x4	0914 001 3011	HARTING
MegaBit-Modul HAN/Stiftkontakte/2x4	0914 008 3016	HARTING
HAN Modular/Blindmodul	0914 000 9950	HARTING
Giga-/MegaBit-Modul HAN/5-7mm	6103 000 0141	HARTING
Anbau-geh HAN 10 B/Baugr 10 1-Längsbügel-Verriegelungs. [+1A]	0930 010 0305	HARTING
Sockel-geh HAN 10 B/Baugr 10 1-Längsbügel-Verriegelungs. [+2B]	1930 010 1290	HARTING
Gelenkrahmen HAN f 3 Module/A-C	0914 010 0303	HARTING
DD-Quick Lock-Modul HAN/Bu-einsatz/12p./versilb.	0914 012 2732	HARTING
Crimp HAN/Buchse/0,5 ² /vergol	0915 000 6403	HARTING
MegaBit-Modul HAN/Bu-einsatz/2x4	0914 001 3111	HARTING
MegaBit-Modul HAN/Bu-kontakte/2x4	0914 008 3116	HARTING
HAN Modular/Blindmodul	0914 000 9950	HARTING
Giga-/MegaBit-Modul HAN/5-7mm	6103 000 0141	HARTING

Wiring table binär

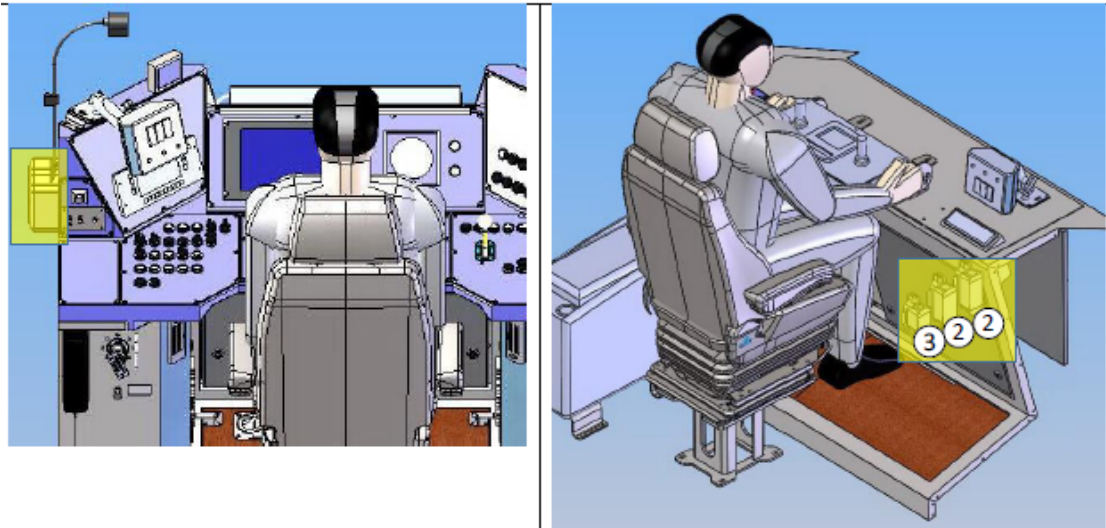
PIN	Signal	Signal direction	binary/ CAN	Description
1aA	CAN-H	WDH Control >>>Main Panel	binary	CAN in
2aA	CAN-L	WDH Control >>>Main Panel	binary	CAN in
3aA	GND	WDH Control >>>Main Panel	binary	CAN in
4aA	free			
1aB	CAN-H	Main Panel >>> WDH Control	binary	CAN out
2aB	CAN-L	Main Panel >>> WDH Control	binary	CAN out
3aB	GND	Main Panel >>> WDH Control	binary	CAN out
4aB	free			
1B	Release/ STOPP Additional equipment [NC]	Main Panel >>> WDH Control	binary	0V Signal from the Main Panel=> The power supply is disconnected from the Additional equipment . No safety signal. Safely Stopp the equipment about the emergency Stopp Button
2B-12B	1:1 Connection	Main Panel / WDH Control	binary	1: 1 connection for signals from the WDH Control and the Main Panel

Signal table CAN

No.	Signal	Signal direction	binary/ CAN	Description
1.	RPM regulation +	Main Panel >>> MPV	CAN	Controlling the proportional valve of the pump
2.	RPM regulation -	Main Panel >>> MPV	CAN	Controlling the proportional valve of the pump
3.	Main Panel active	Main Panel >>> MPV	CAN	Only one Desk can be activated
4.	Type of snow-equipment	Main Panel >>> MPV	CAN	

Electrical schematic – Harting connector

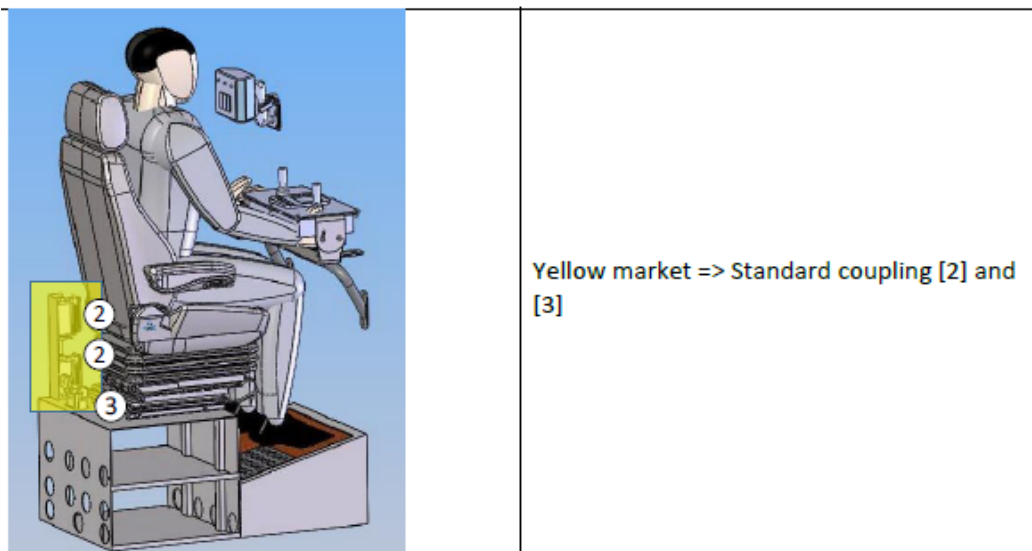
Standard coupling [2] and [3] in driving direction cabin (side 1)



Yellow market => Standard coupling [2] and [3]

To operate the winter equipment in front or rear the Main Panel must be connected with the Standard coupling [2] and [3]. The Panel Plough must be only with Standard coupling [2] connected.

Standard coupling [2] and [3] in driving direction crane (side 2)

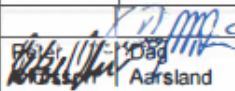


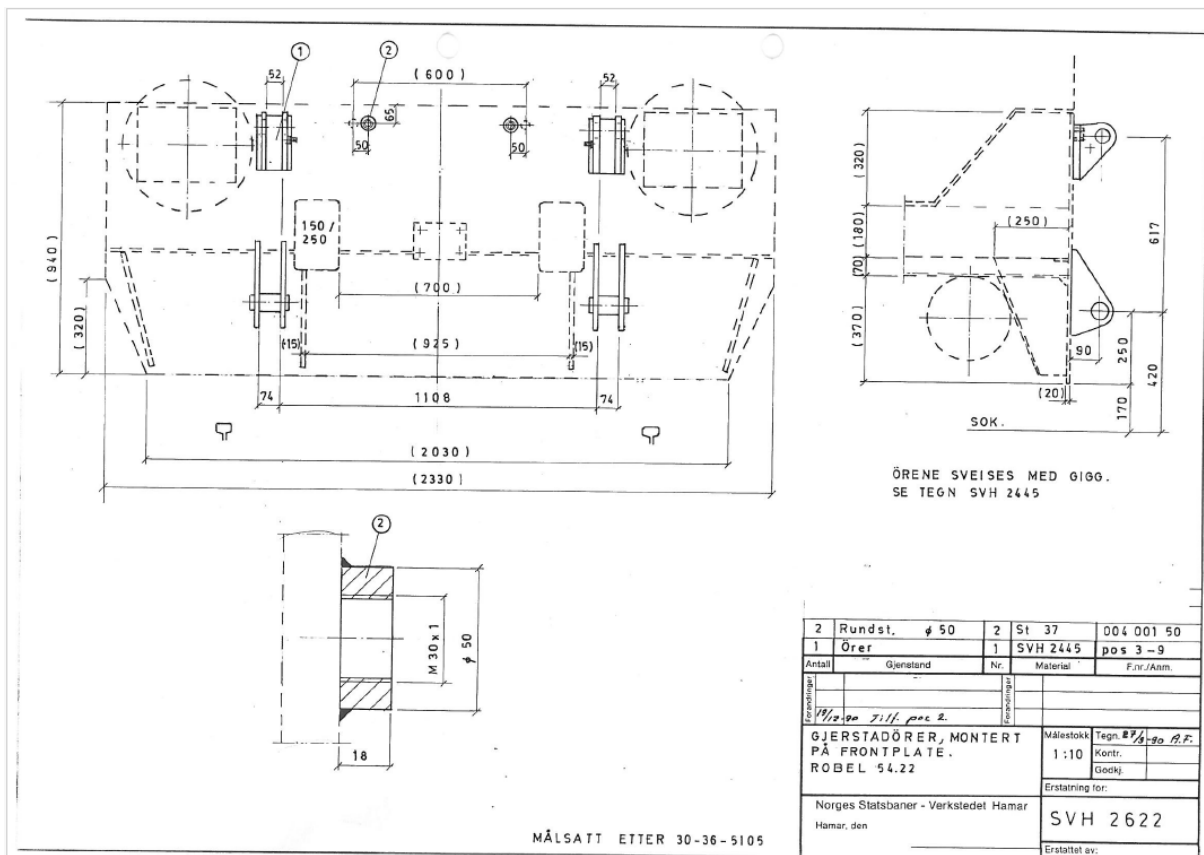
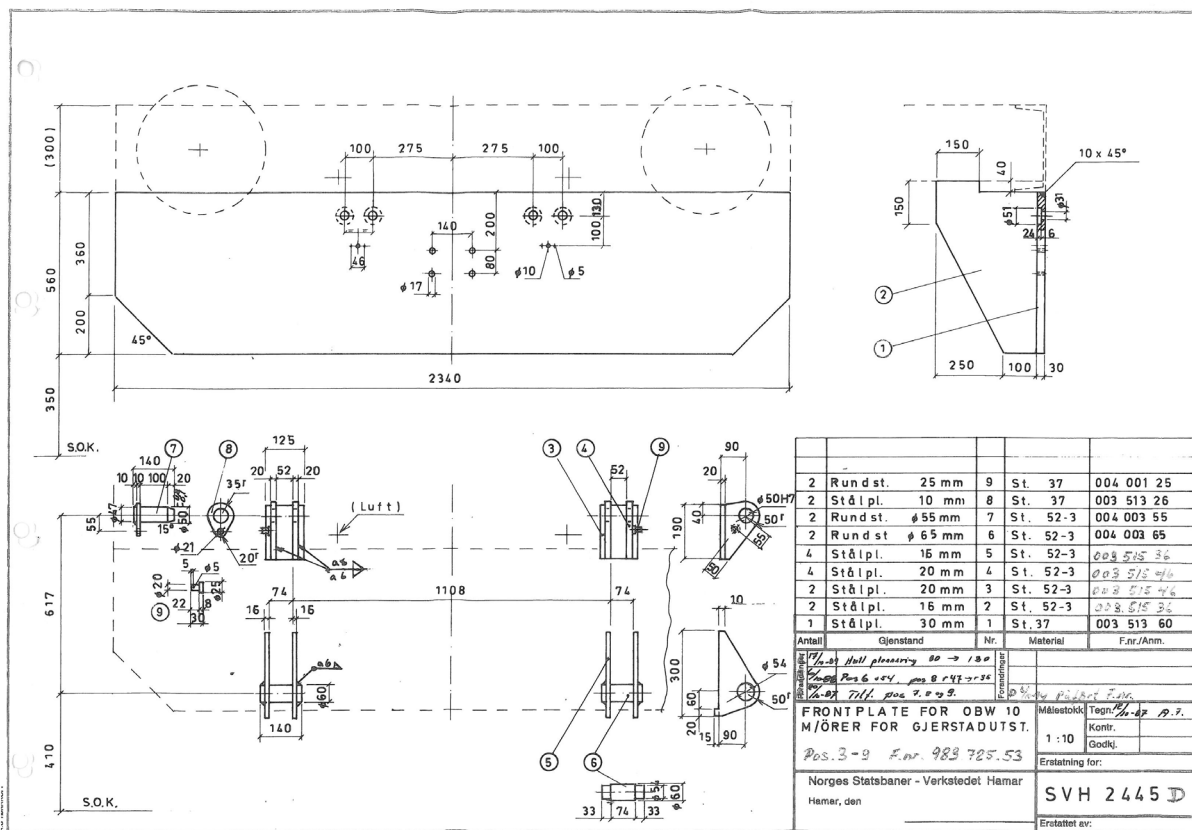
To operate the winter equipment in front or rear the Main Panel must be connected with the Standard coupling [2] and [3]. The Panel Plough must be only with Standard coupling [2] connected.

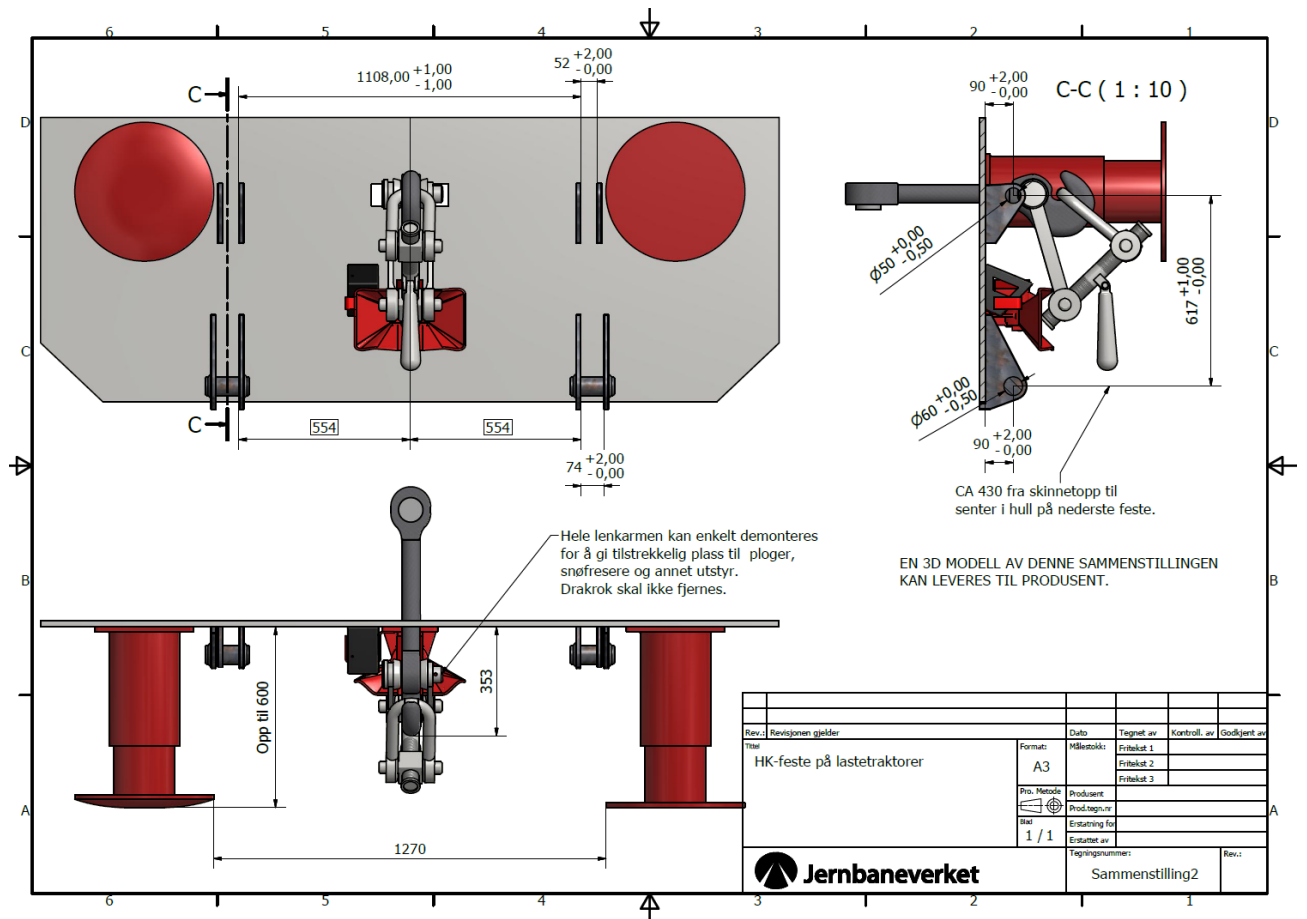
Reverse Volvo HK mount mounted buffer plates

FRAME AND BODY

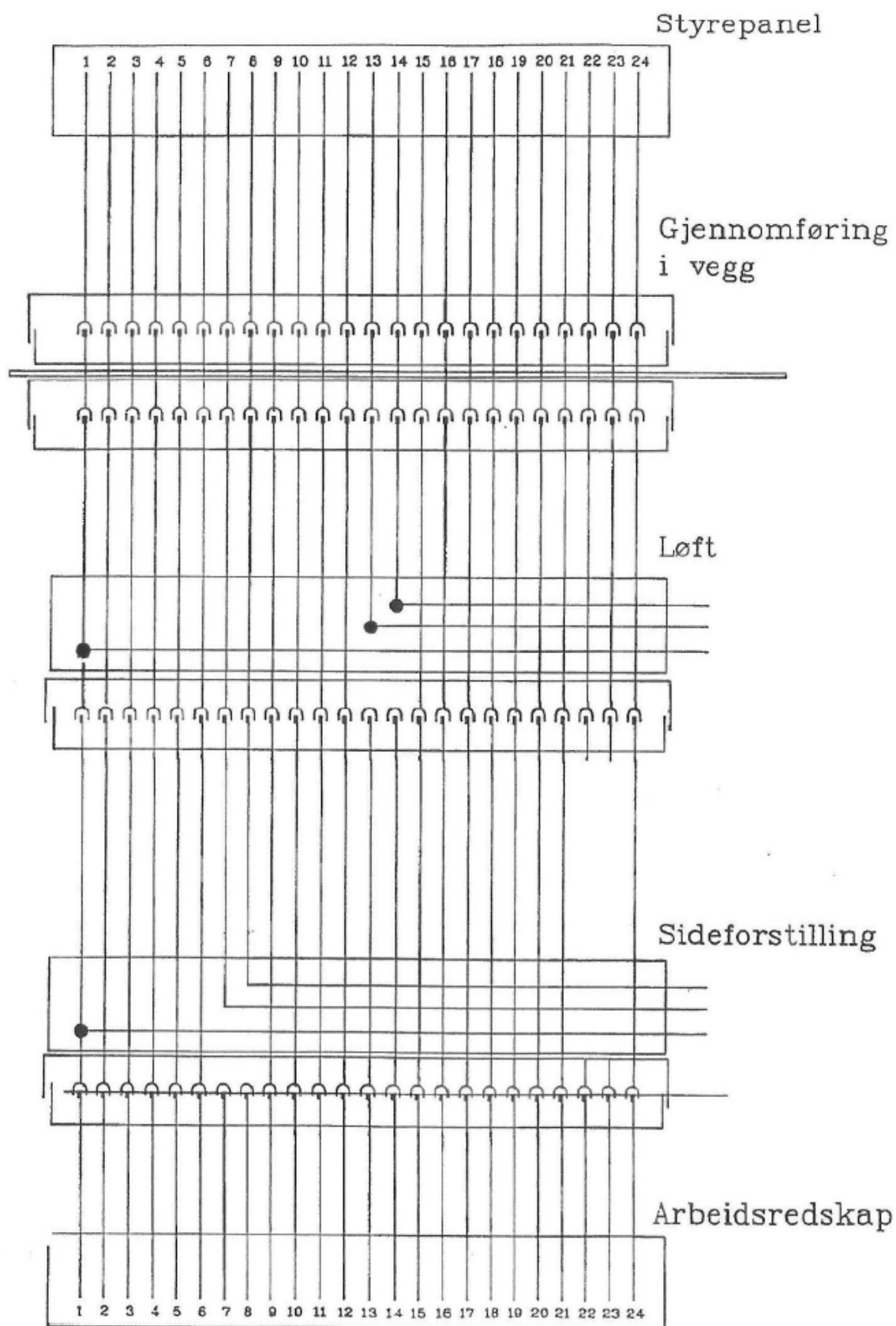
Gjerstadører Reverse Volvo HK attachment of Mounted buffer plates

001	Endret mål senterlinjer bolter til bufferplate fra 85 mm til 90 mm i henhold til originaltegning.	10.12.2015	Arvid Andersen		Dag Aarsland	
000	Originale tegninger fra «Mitrans Hamar» SVH 2445 D og SVH 2622.	18.05.15	Arvid Andersen	Peter Olofsson	Dag Aarsland	
Rev.	Revisjonen gjelder	Dato	Utarb. av	Kontr. av	Godkj. av	
Materiellgruppe: 36 Type: Alle Individene: Alle		Antall sider	Sys.nedbryt.			
		3	Fritekst 3d			
		Produsent				
		Prod. dok. nr.				
		Erstatning for				
		Erstattet av				
 Jernbaneverket		Dokument nr.			Rev.	
		RM-0000007303			001	





02.12.88 KEA



TILLEGGSUTSTYR TIL BANEAVDELINGENS ARBEIDSMASKINER

STANDARDKOBLING MELLOM BETJENINGSPULT OG PÅHENGTT UTSTYR.

KABELEN SKAL UTSTYRES MED EN HARTING STIKKFORBINDELSE TYPE E 24 MED HUN PÅ UTSTYRSIDEN OG HAN PÅ BETJENINGSSIDEN. SYSTEMET BLIR STRØMFORSYNT I KONTAKTET PÅ LASTETRAKTOREN. KABELEN SKAL GÅ UT PÅ VENSTRE SIDE PÅ UTSTYRET SETT FRA LASTETRAKTOREN. PÅ BÆRENDE ENHETER SØM LØFT, SIDEFORSTILLING OG LIGNENDE SKAL ALLE LEDERE SOM IKKE ER TATT I BRUK PÅ ANGJELDENDE UTSTYR VIDEREFØRES TIL UTENFORLIGGENDE UTSTYR I E 24 KONTAKT ETTER KOBLINGSSKJEMA

KOBLINGSSKJEMA:

1	24 V -	13	LØFT }
			} BÆRER
2	24 V	14	SENK }
3	SVING V. }	15	
	} REDSKAP		
4	SVING H. }	16	
5	DREIE V. }	17	
	} REDSKAP		
6	DREIE H. }	18	
7	SIDEFORST. V. }	19	
8	} BÆRER		
8	SIDEFORST. H. }	20	
9	LAS FORSTILLING }	21	VENSTRE VING UT }
	} BÆRER		} REDSKAP
10	LAS FORSTILLING }	22	VENSTRE VING INN }
11	HØYRE VING UT }	23	
	} REDSKAP		
12	HØYRE VING INN }	24	

VED KOBLING AV UTSTYR SOM IKKE ER DEFINERT HER, TA KONTAKT MED DRIFTSANSVARLIG / MASKINOPPSYN

NSB MH. 01.10.91 KEA

Merknad:

Fra tidligere koblingsskjema, står begge SIDEFORST. Nr.7 & Nr.8 med bokstav V

TILLEGGSUTSTYR TIL LASTETRAKTORER

STANDARDKOBLING MELLOM BETJENINGSPULT OG AGGREGAT.

KABELEN SKAL UTSTYRES MED EN HARTING STIKKFORBINDELSE
TYPE E 24 MED HAN PÅ UTSTYRSIDEN OG HUN PÅ BETJENINGSSIDEN.
SYSTEMET BLIR STRØMFORSYNT FRA AGGREGAT.
KABELEN SKAL VÆRE 2 M PÅ HVER SIDE.

KOBLINGSSKJEMA:

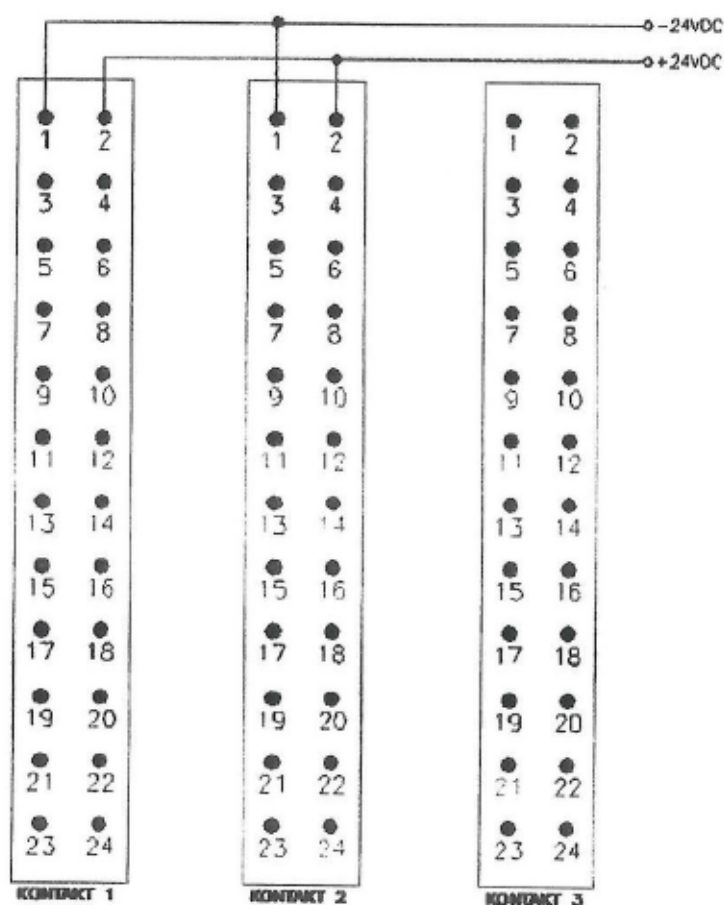
1	24 V -	13	TURTALLSREG. +
2	24 V	14	TURTALLSREG. -
3	LADEKONTROLL	15	
4	START	16	
5	FORRIGLING	17	
6	MOTORSTOPP	18	
7	GLØDEKONTROLL	19	ARBEIDSLYS
8	GLODING	20	SERVOVENTIL +
9	OLJETRYKKONTROLL	21	SERVOVENTIL -
10	TEMPERATURKONTROLL	22	
11	TIMETELLER	23	KALDSTART
12	DRIVSTOFFMÅLER	24	

VED KOBLING AV UTSTYR SOM IKKE ER DEFINERT HER, TA KONTAKT MED
DRIFTSANSVRLIG / MASKINOPPSYN.

NSB MH 24.09.91 KEA

KOBLINGSSKJEMA FOR HARTING STIKKONTAKTER

MONTERT I FØRERKABINENS BAKVEGG



Kontakt 1 og 2 er forbindelse til tilleggsutstyr foran og bak på lastetraktoren. Inne i hytta monteres Harting E 24 hankontakt

Kontaktene strømforsynes over egen sikring fra lastetraktorens elektriske anlegg.

Kontakt 3 er forbindelse til hydraulikkaggregat på lasteplan. Inne i hytta monteres Harting E 24 hankontakt.

Kontakta strømforsynes over kabel fra aggregat.

Minusforbindelse fra lastetraktoen legges til pinne 1 på kontakt 1 og 2. Denne tegningen erstatter tegning av 01.12.88.

Jernbaneverket, Hamar, Odd Arne Storberget 03.08.2010

