

Installation Manual



Automatic TWIN-3 Greasing System **Material Handler**

Caterpillar M325C MH/LMH
F210859R00

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Material Handler Caterpillar M325C MH/LMH

1.

PREFACE



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Material Handler Caterpillar M325C MH/LMH



1.1 General information

This installation manual describes the installation of the Twin-3 system on the Caterpillar Material Handler type M325C MH/LMH.

Automatic Twin-3 Greasing System

<i>Machine type</i>	<i>Number of grease points</i>	<i>Groeneveld order number</i>	<i>Manual number</i>
Caterpillar M325C MH/LMH excl. pump	28 x	F210856/1	F210859R00
Caterpillar M325C MH/LMH incl. 4L pump	28 x	F210856	F210859R00
Optional: Remote filler kit	-	F210364	F210859R00

1.2 Use of symbols

<i>Symbol</i>	<i>Explanation</i>
H	High pressure hose 1/4" I/D or 3/8" I/D
1/4" S6-200-E6	1/4" = internal diameter S6 = connector straight ø6 mm 200 = length (mm) E6 = connector elbow ø6 mm
P	Grease pump
PS	Main line pressure switch
	Distribution block
4.25	Position number on the parts list
	Grease point position number
BK	Black
BN	Brown
BU	Blue
RD	Red
GY	Grey
YE	Yellow
BR	Brass
PA	Polyamide
SST	Stainless steel
ST-G	Galvanised steel

1.3 Safety precautions

For starting installation, carry out the following tasks:

- Remove ignition key to prevent engine from starting while you are working.
- Block all moving parts, like lifting frames, breaking points and mast parts.
- Block the wheels.
- Follow machine manufacturer's guidelines for general safety and precautions.

During activities that require a lifting jack:

- The machine should not rest on the lifting jack solely. Use additional support.

General:

- Always keep your work area clean.

1.4 General fitting instructions

Before

- Check if all the parts of the Twin-system are present by using the parts list.
- Check if all the grease points are open and provided with grease. Lubricate the grease points if there is not sufficient grease. This way damage due to insufficient grease is prevented.

During installation

- Prevent dirt from entering the system during installation.
- Use clean tools.
- Clean the machine at points, where the pump and the distribution blocks have to be installed. Even small pollution can cause failure of the system!
- Even if stud couplings or plugs are not provided with an O-ring sealing or sealing ring, use teflon tape or a liquid sealing agent.

Material Handler Caterpillar M325C MH/LMH

Notes

2.

SYSTEM LAY-OUT



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Material Handler Caterpillar M325C MH/LMH

Parts list

The Twin-3 system F210856/1 for the Caterpillar M325C MH/LMH comprises the following parts:

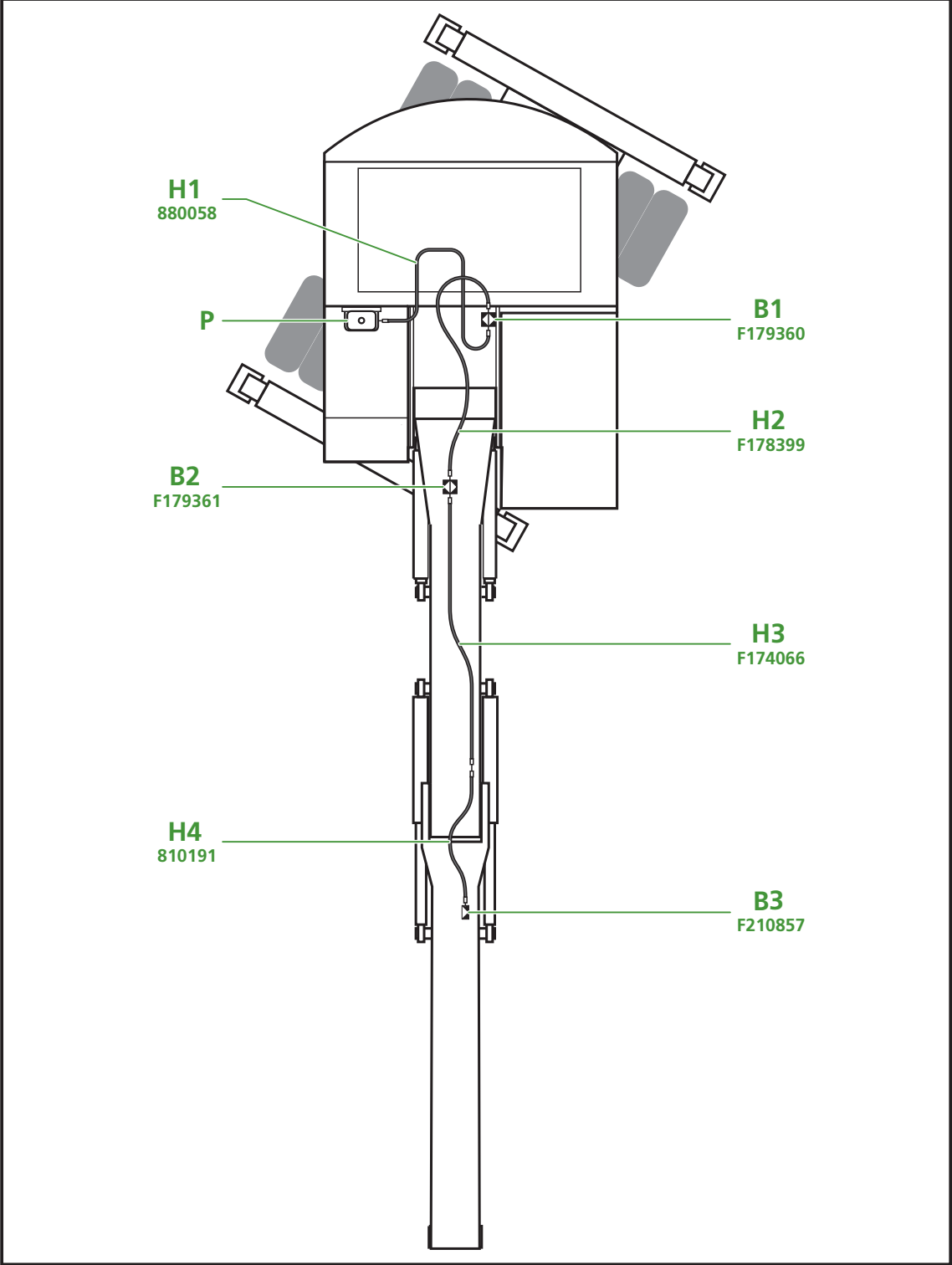
<i>Kit number</i>	<i>Groeneveld order number</i>	<i>Description</i>
	F210357	Pump and electrical kit Caterpillar M325C MH/LMH
	F210363	Bracket pump kit Caterpillar M325C MH/LMH
F210364		Optional: Remote filler kit
F179360	F179365	Installation kit Twin 14-port block B1
F179361	F179366	Installation kit Twin 12-port block B2
F210857	F210858	Installation kit Twin 5-port block B3
	F179368	Twin Main line kit Caterpillar M325C MH/LMH
	F210859	Install manual Caterpillar M325C MH/LMH
880058		High-pressure hose 3/8" S10-3400-S10 H1 2x
F178399		High-pressure hose 3/8" S10-3000-S10 H2 2x
F174066		High-pressure hose 3/8" S10-8000-nothing H3 2x
810191		High-pressure hose 1/4" S10-2000-S10 H4 2x

Parts list

The Twin-3 system F210856 for the Caterpillar M325C MH/LMH comprises the following parts:

<i>Kit number</i>	<i>Groeneveld order number</i>	<i>Description</i>
	F210856/1	Caterpillar M325C MH/LMH excl. pump
	F124630	Twin-3 Pump 12cc/24v/4L/250 bar Tyco

Material Handler Caterpillar M325C MH/LMH



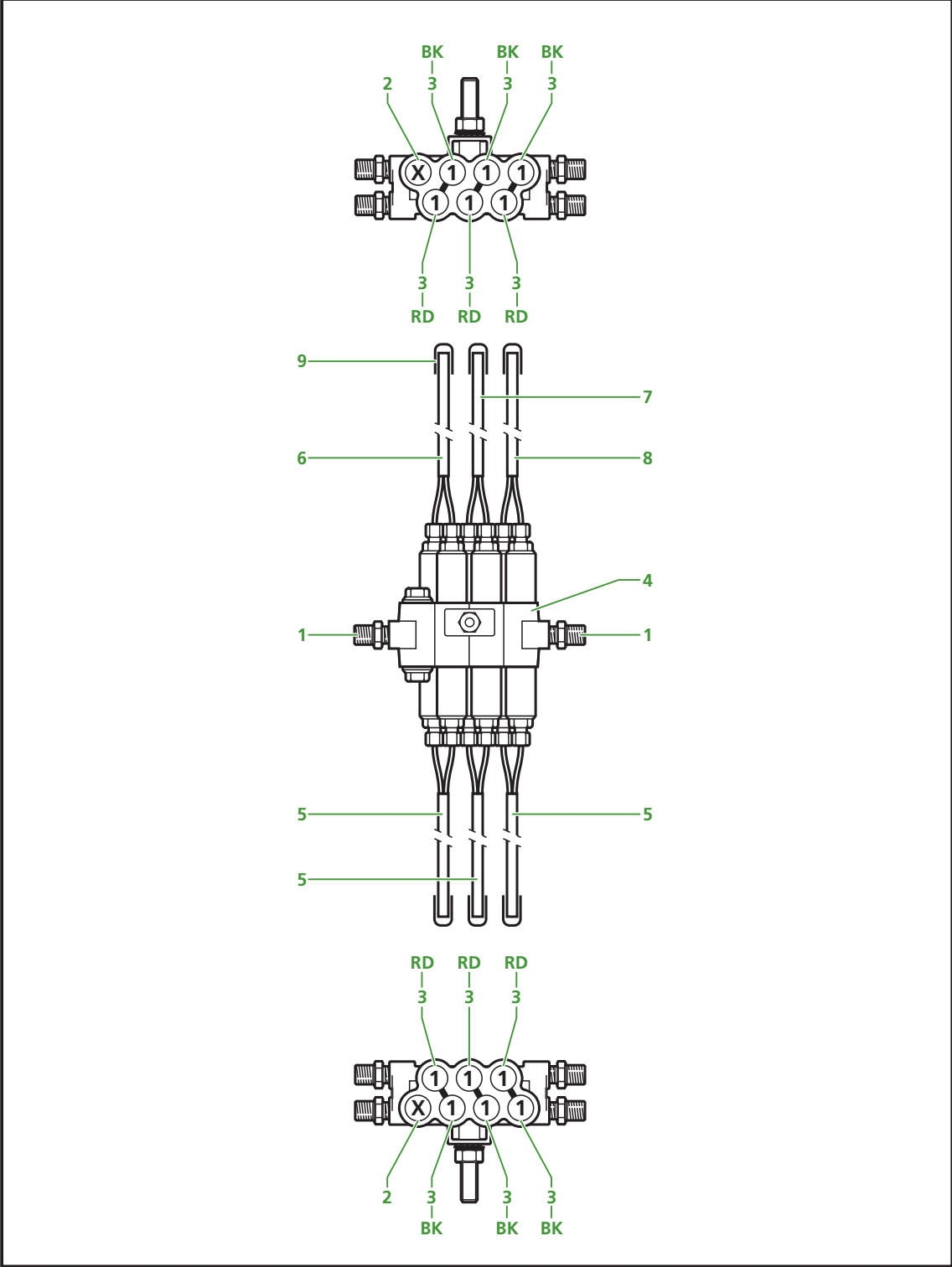
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Material Handler Caterpillar M325C MH/LMH

Parts list

2.1 F179360 Twin 14-port block, complete

<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
1	4	72122	Body, male stud coupling 1/4" - ø10mm ST-G
2	2	70701	Shut-off plug M22 x 1 BR
3	12	70801	Metering unit No.1 - 0.050cc/M22/6mm/BR
4	1	88501	Twin 14-port block M10 BR
5	3	72301	Grease pipe 2 x ø6mm x 1.5 PA per 3m
6	4m	77401	Grease pipe 2 x ø6mm x 1.5 PA per m
7	4m	77401	Grease pipe 2 x ø6mm x 1.5 PA per m
8	6m	77401	Grease pipe 2 x ø6mm x 1.5 PA per m
9	6	28401	Protective cap ø9.5mm



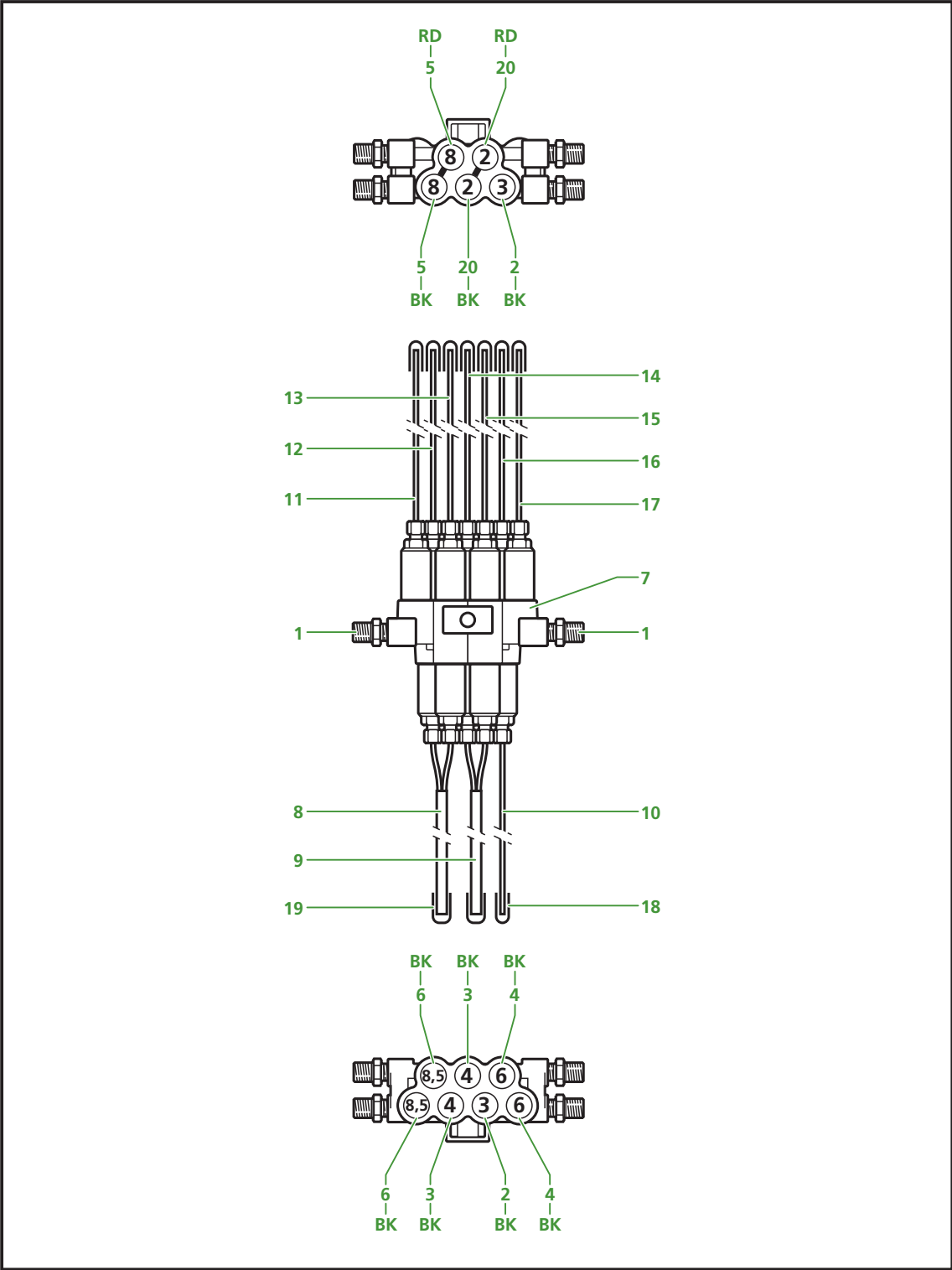
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Material Handler Caterpillar M325C MH/LMH

Parts list

2.2 F179361 Twin 12-port block, complete

<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
1	4	72122	Body, male stud coupling 1/4" - ø10mm ST-G
2	2	71001	Metering unit No.3 - 0.150cc/M22/6mm/BR
3	2	71101	Metering unit No.4 - 0.200cc/M22/6mm/BR
4	2	72701	Metering unit No.6 - 0.300cc/M22/6mm/BR
5	2	71201	Metering unit No.8 - 0.400cc/M22/6mm/BR
6	2	79501	Metering unit No.8,5 - 0.700cc/M22/6mm/BR
7	1	F110631	Twin 12-port block without stud BR
8	6m	77401	Grease pipe 2 x ø6mm x 1.5 PA per m
9	6m	77401	Grease pipe 2 x ø6mm x 1.5 PA per m
10	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
11	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
12	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
13	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
14	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
15	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
16	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
17	1m	77301	Grease pipe 1 x ø6mm x 1.5 PA per m
18	8	02717	Protective cap ø6mm
19	2	28401	Protective cap ø9.5mm
20	2	70901	Metering unit No.2 - 0.100cc/M22/6mm/BR



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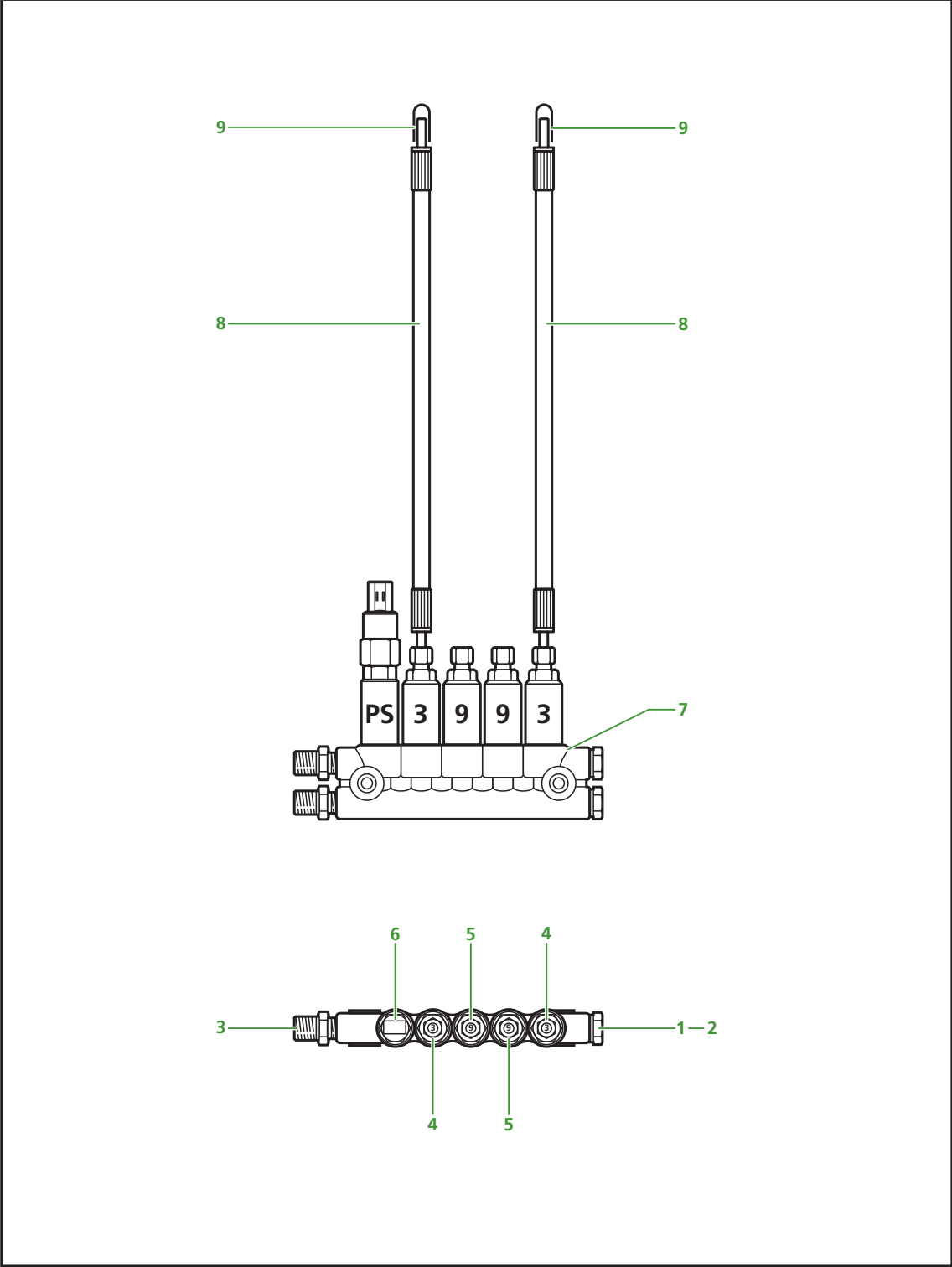
Material Handler Caterpillar M325C MH/LMH

Parts list

2.3 F210857 Twin 5-port block, complete

<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
1	2	32901	Threaded plug 1/4" BR
2	2	83901	Sealing ring
3	2	72122	Body, male stud coupling 1/4" - ø10mm ST-G
4	2	71001	Metering unit No.3 - 0.150cc/M22/6mm/BR
5	2	79601	Metering unit No.9 - 1.000cc/M22/6mm/BR
6	1	F125745	Pressure switch 100 bar, complete BR Tyco
7	1	06817	Twin 5-port block, flat BR
8	2	830271	H.P.H. 1/4" S6-1050-S6
9	2	02717	Protective cap ø6mm

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3.

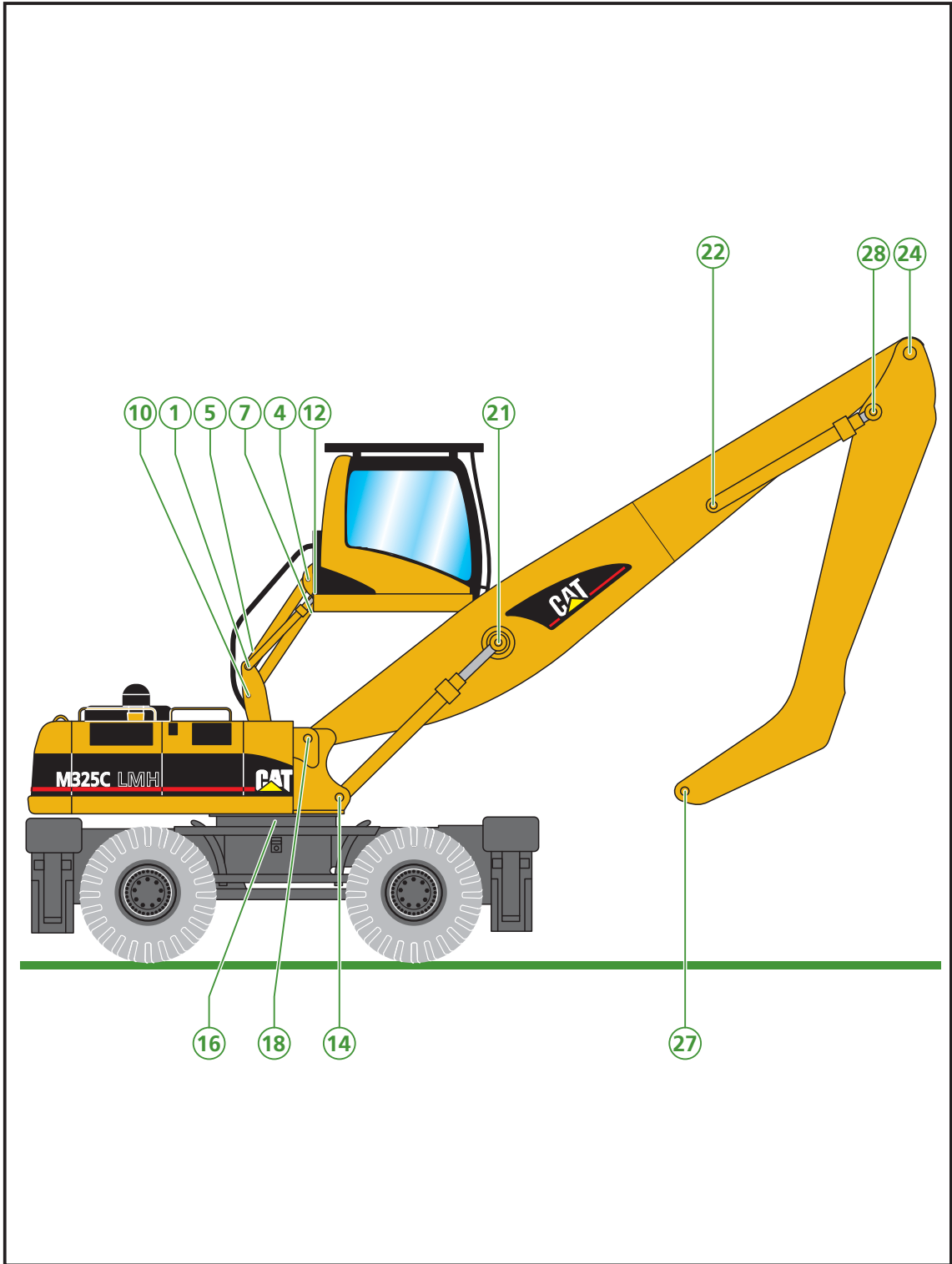
GREASE POINT LOCATION

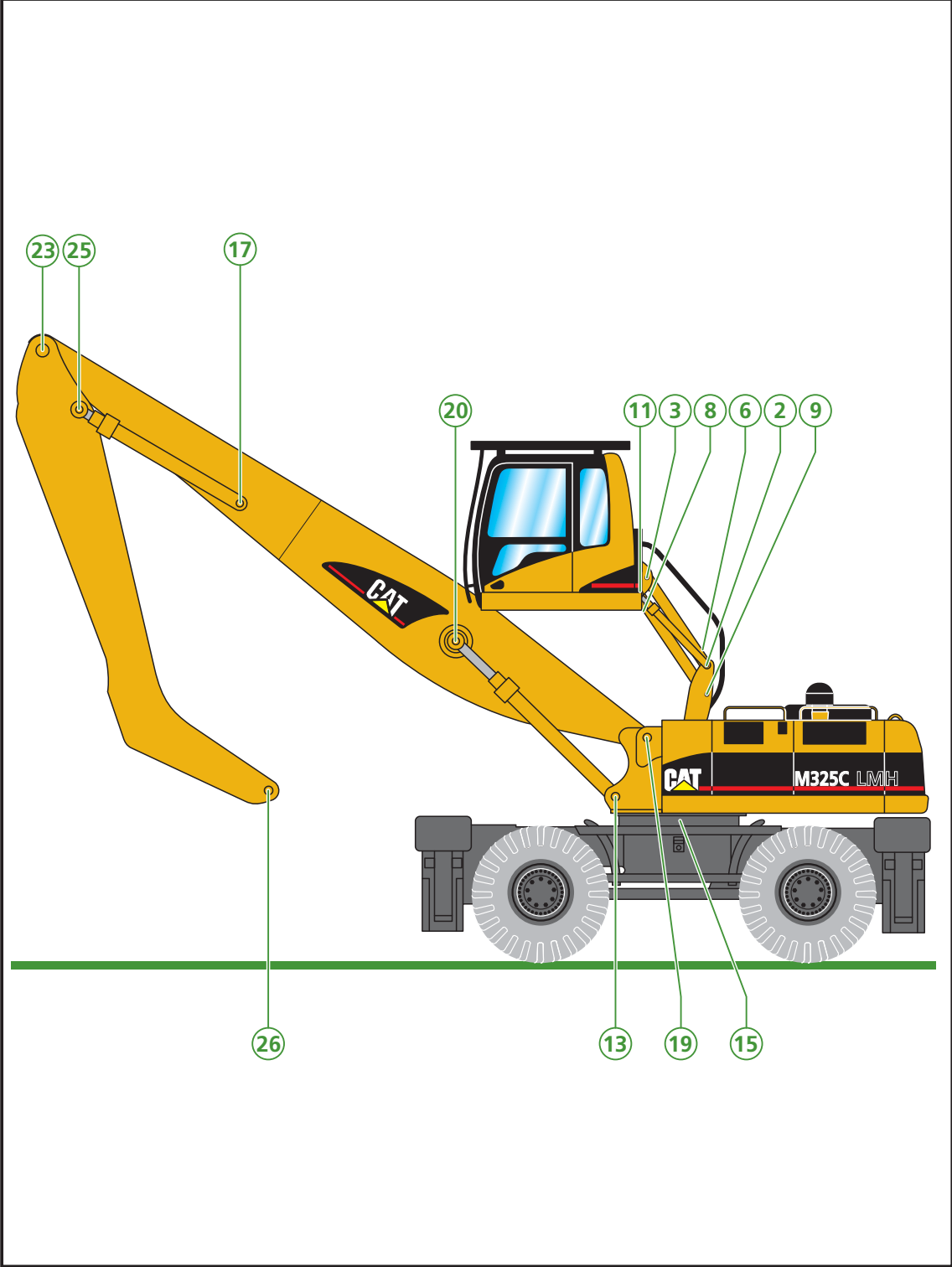


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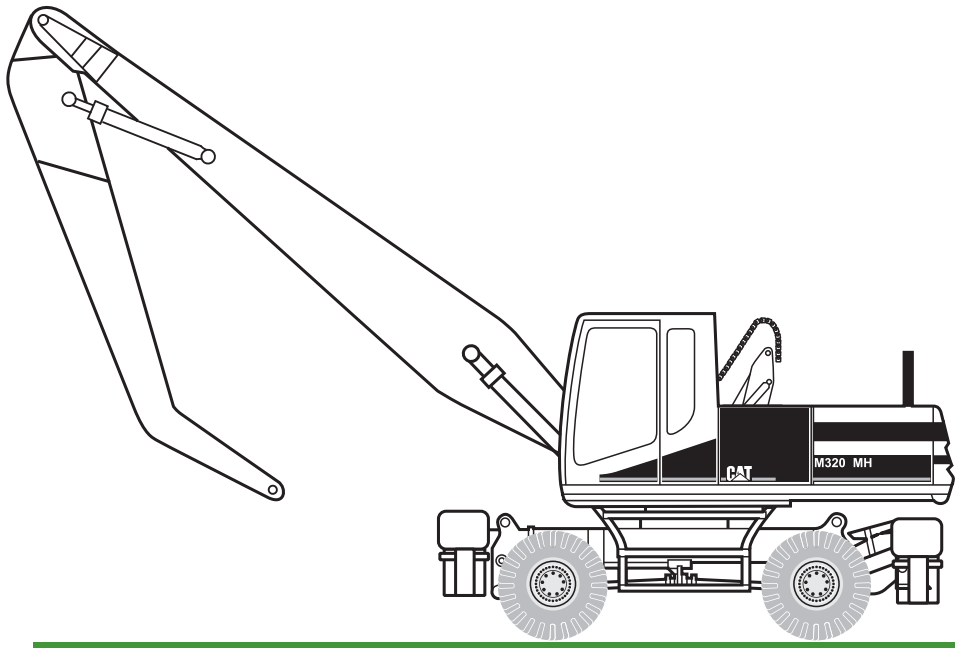




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4.

PUMP AND ELECTRICAL INSTALLATION



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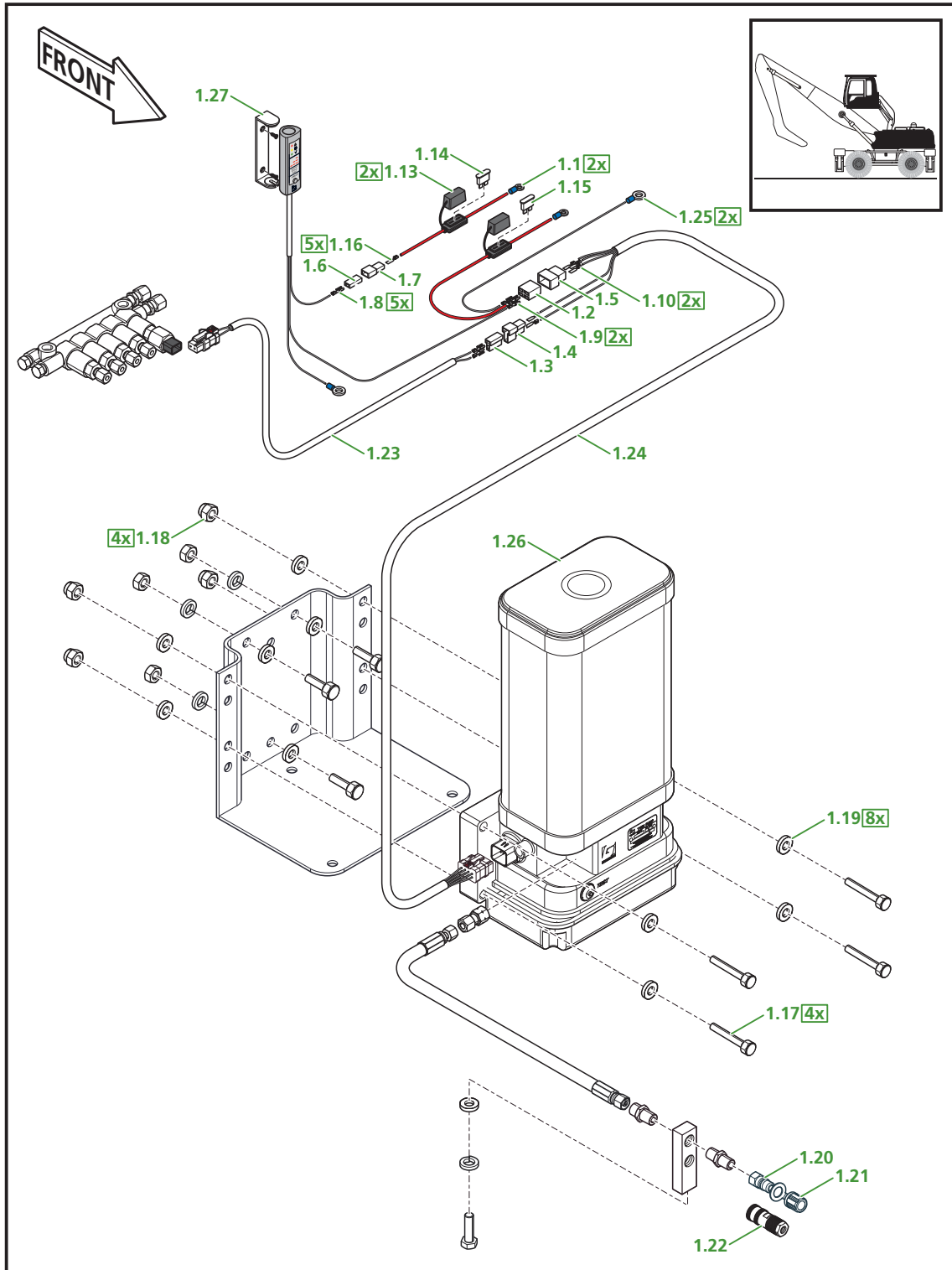
Material Handler Caterpillar M325C MH/LMH

Parts list

4.1 F210357 Twin-3 Pump and electrical kit

<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
1.1	2	03303	AMP eyelet ø6mm
1.2	1	13103	Connector housing 4-pole male
1.3	1	61006	Connector housing 2-pole male
1.4	1	61106	Connector housing 2-pole female
1.5	1	67506	Connector housing 4-pole female
1.6	1	67606	Connector housing 1-pole male
1.7	1	67706	Connector housing 1-pole female
1.8	5	67806	Flat plug sleeve, not insulated 0,75mm ²
1.9	2	68606	Flat plug sleeve, not insulated 1,5mm ²
1.10	2	68706	Flat plug , not insulated 1,5mm ²
1.11	50	11107	Cable tie 338mm
1.12	200	00208	Cable tie 186mm
1.13	2	03108	Fuse holder IP67
1.14	1	15608	Fuse 5A plug-in
1.15	1	19508	Fuse 10A plug-in
1.16	5	61416	Flat plug, not insulated 0,75mm ²
1.17	4	108050	Hexagonal bolt M8 x 50 ST-G
1.18	4	220008	Selflocking nut M8 ST-G
1.19	8	300008	Plain washer M8 ST-G
1.20	1	F100359	Quick action male open
1.21	1	F117695	Protection cap
1.22	1	F120867	Quick action female open
1.23	1	F123726	Pressure switch cable 25m
1.24	1	F123728	Cable harness pump 15m
1.25	2	F179041	AMP eyelet ø10mm
1.26	N/A	N/A	Twin-3 Pump
1.27	1	F204524	Twin-3 display unit
1.28	1	XU1702	Twin-3 user manual

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Material Handler Caterpillar M325C MH/LMH

Parts list

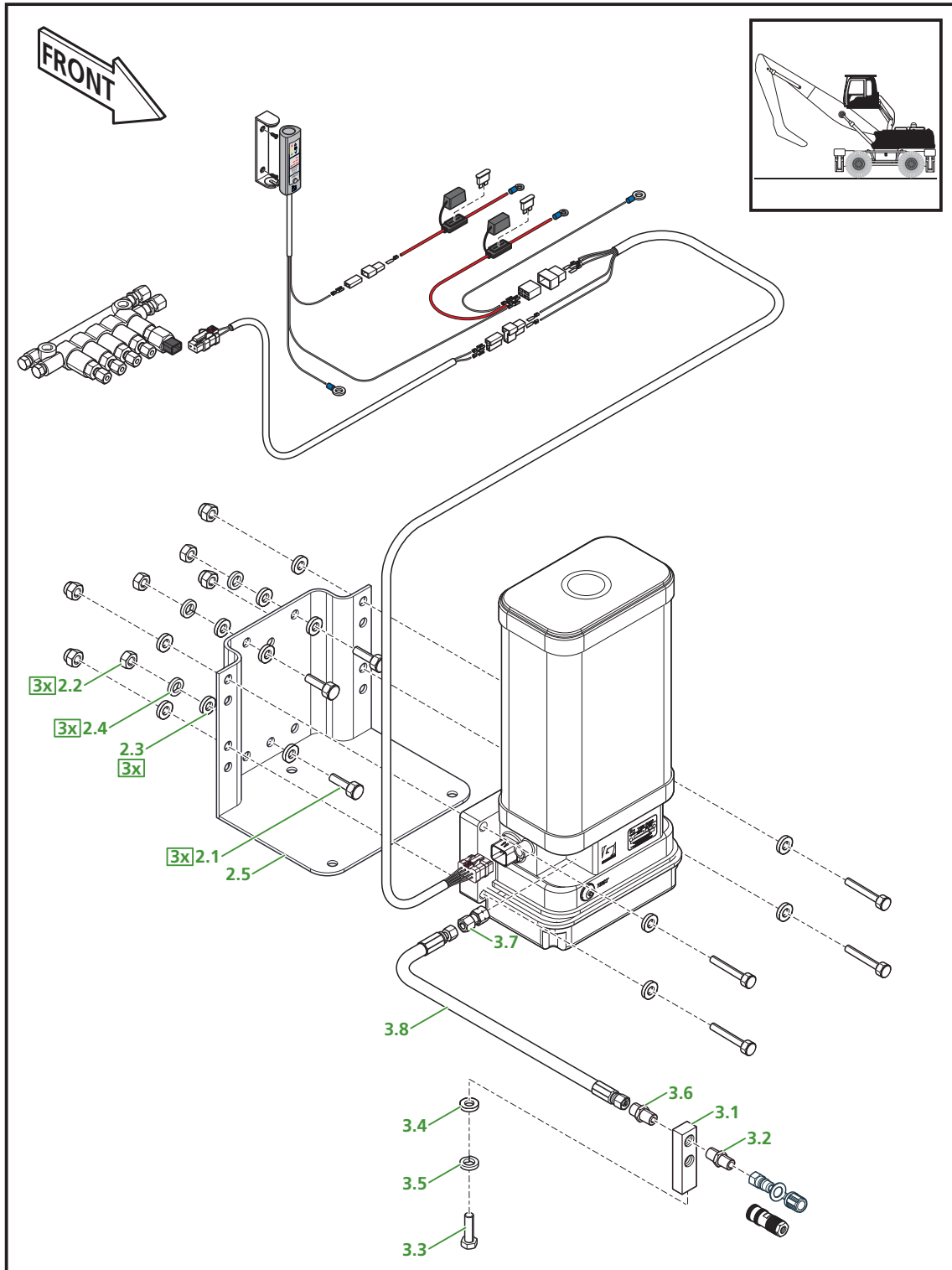
4.2 F210363 Pump bracket kit

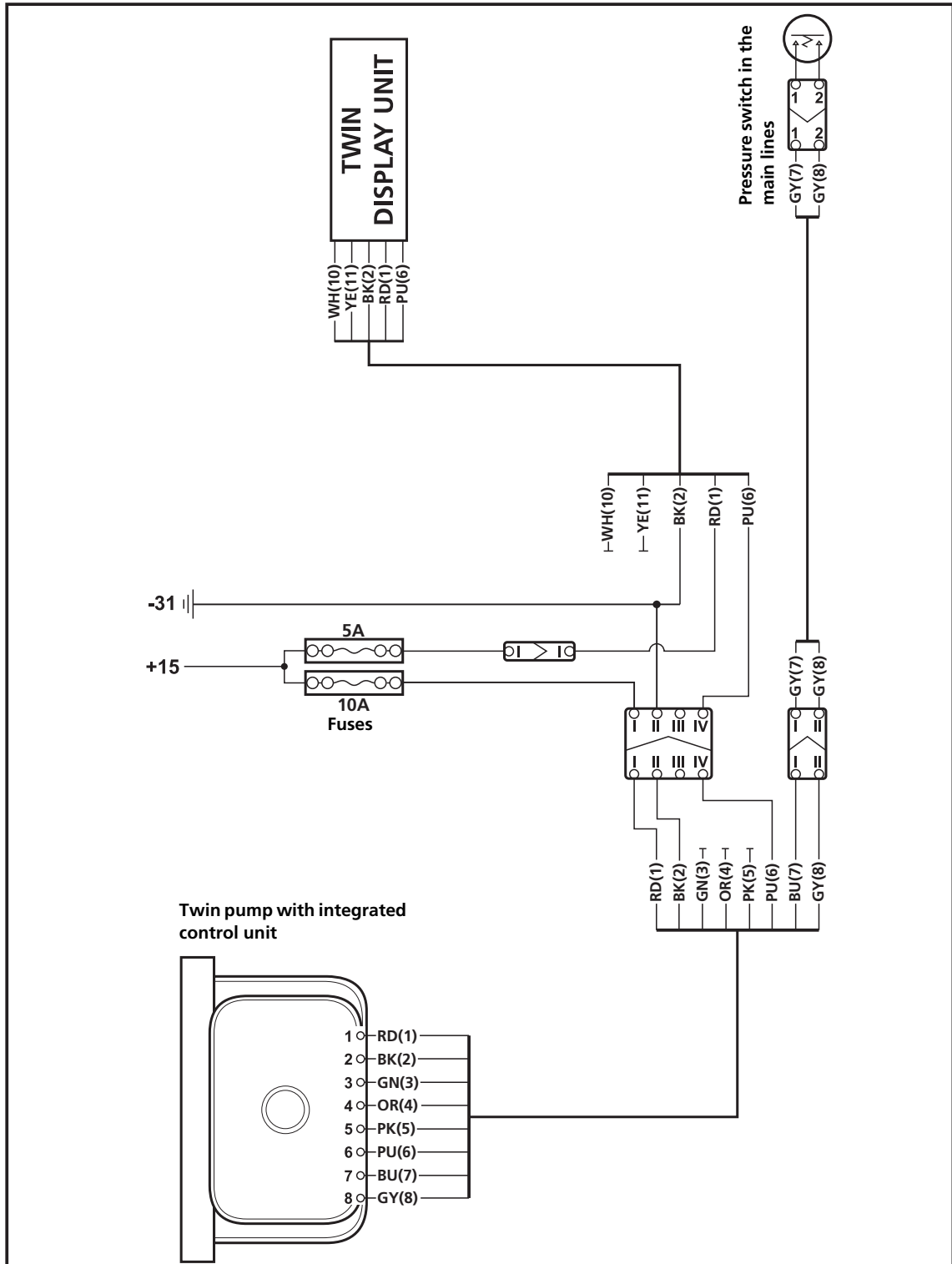
<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
2.1	3	101030	Hexagonal bolt M10x30 ST-G
2.2	3	200010	Nut M10 ST-G
2.3	6	300010	Plain washer M10 ST-G
2.4	3	330010	Spring washer M10 ST-G
2.5	1	F204517	Bracket

4.3 Optional: F210364 Remote filler kit

<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
3.1	1	06812	Bracket
3.2	1	62502	Hex nipple 1/4" G ST-G
3.3	1	101020	Hexagonal bolt M10x20 ST-G
3.4	1	300010	Plain washer M10 ST-G
3.5	1	330010	Spring washer M10 ST-G
3.6	1	F170785	Body, male stud coupling 1/4" - ø12mm ST-G
3.7	1	F200116	Female stud coupling 1/4" - ø12mm ST-G
3.8	1	F200146	H.P.H. 1/2" S12-0800-S12







Material Handler Caterpillar M325C MH/LMH



5.

DISTRIBUTION BLOCKS



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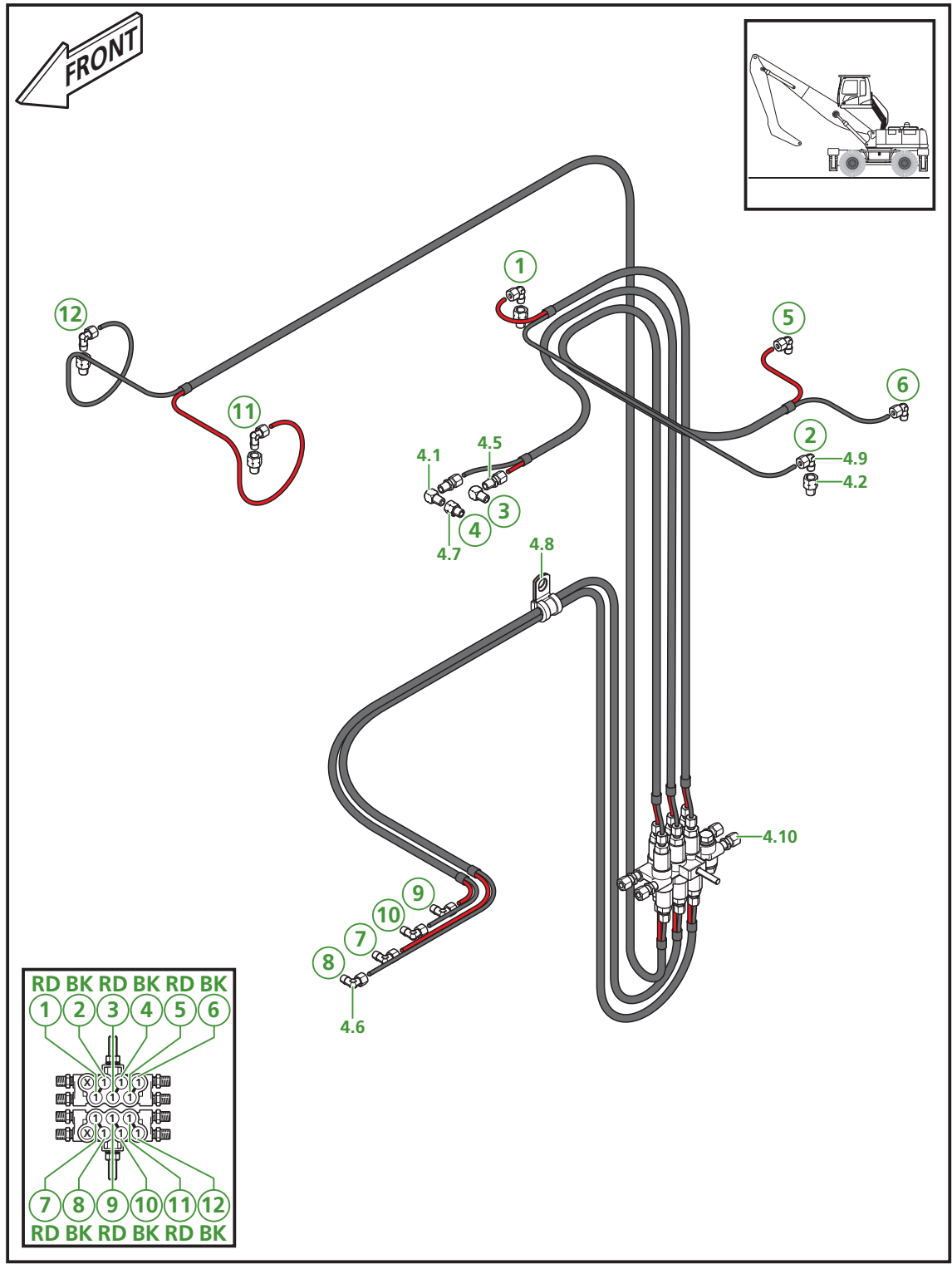
Material Handler Caterpillar M325C MH/LMH

Parts list

5.1 F179365 Installation kit Twin 14-port block / F179360 B1

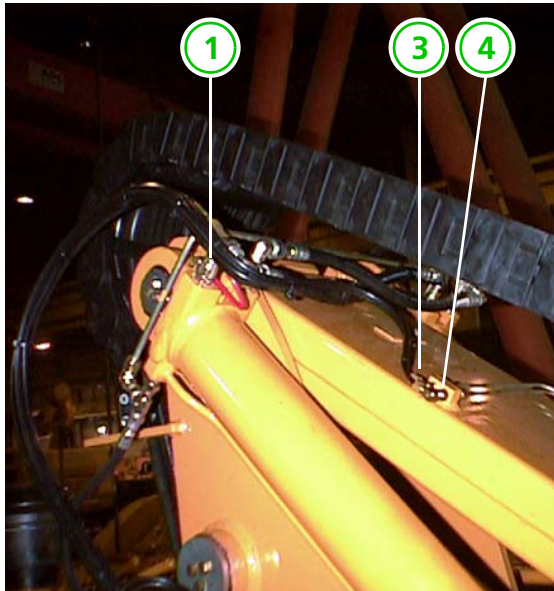
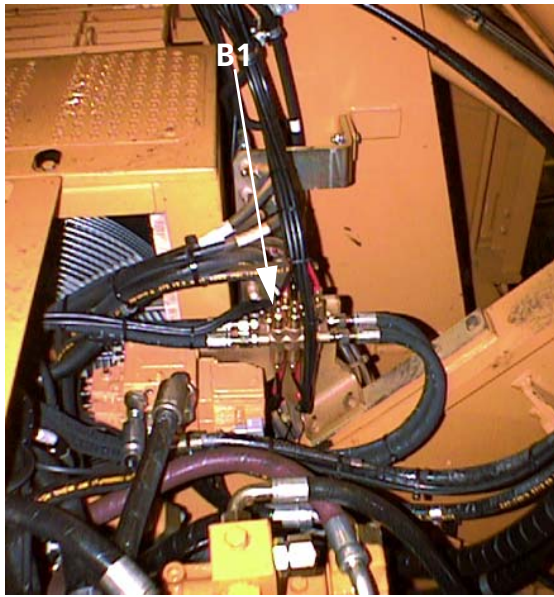
<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
4.1	2	15001	Stud elbow G1/8" ST-G
4.2	4	15601	Adapter M8x1 ST-G
4.3	25	11107	Cable tie, black 338mm
4.4	50	00208	Cable tie, black 186mm
4.5	2	07908	Male stud coupling 1/8" - ø6mm BR
4.6	6	08008	Male stud elbow 1/8" - ø6mm BR
4.7	1	08508	Adapter G1/8" - R1/8" BR
4.8	1	39008	Clamp ø14mm for M10 bolt
4.9	4	13317	Male stud elbow M8x1 - ø6mm BR
4.10	1	F179360	Twin 14-port block, complete

Material Handler Caterpillar M325C MH/LMH

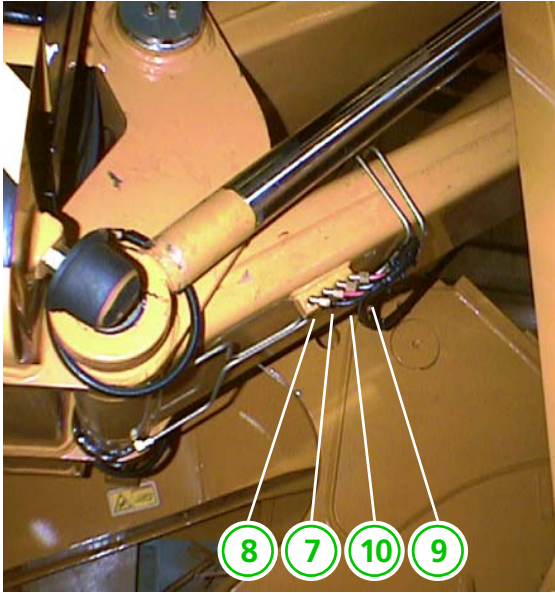


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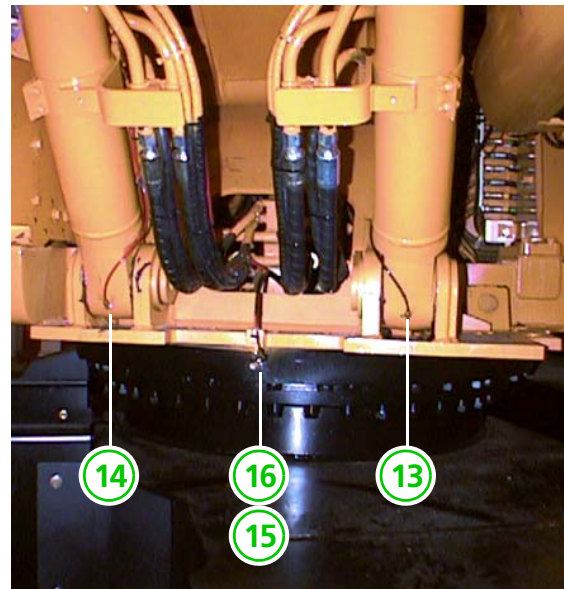
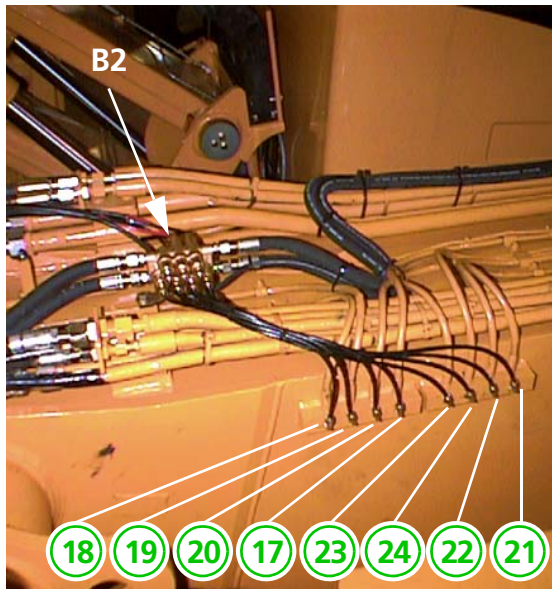


Material Handler Caterpillar M325C MH/LMH

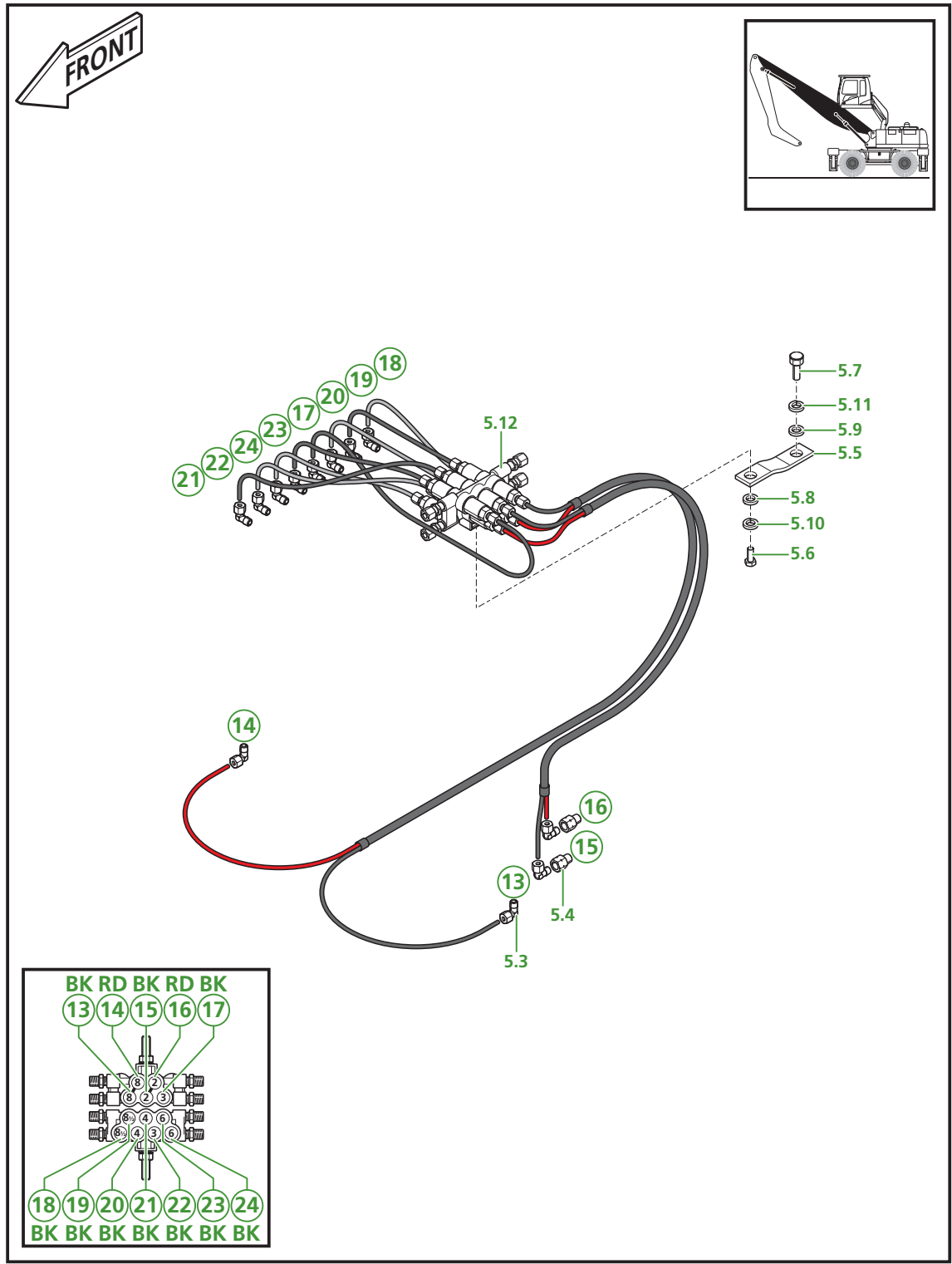
Parts list

5.2 F179366 Installation kit Twin 12-port block / F179361 B2

Pos.	Q'ty	Groeneveld order number	Description
5.1	10	11107	Cable tie, black 338mm
5.2	50	00208	Cable tie, black 186mm
5.3	12	08008	Male stud elbow 1/8" - ø6mm BR
5.4	2	08508	Adapter G1/8" - R1/8" BR
5.5	1	06512	Bracket, distribution block
5.6	1	101020	Hexagonal bolt M10 x 20 ST-G
5.7	1	101230	Hexagonal bolt M12 x 30 ST-G
5.8	1	300010	Plain washer M10 ST-G
5.9	1	300012	Plain washer M12 ST-G
5.10	1	330010	Spring washer M10 ST-G
5.11	1	330012	Spring washer M12 ST-G
5.12	1	F179361	Twin 12-port block, complete



Material Handler Caterpillar M325C MH/LMH



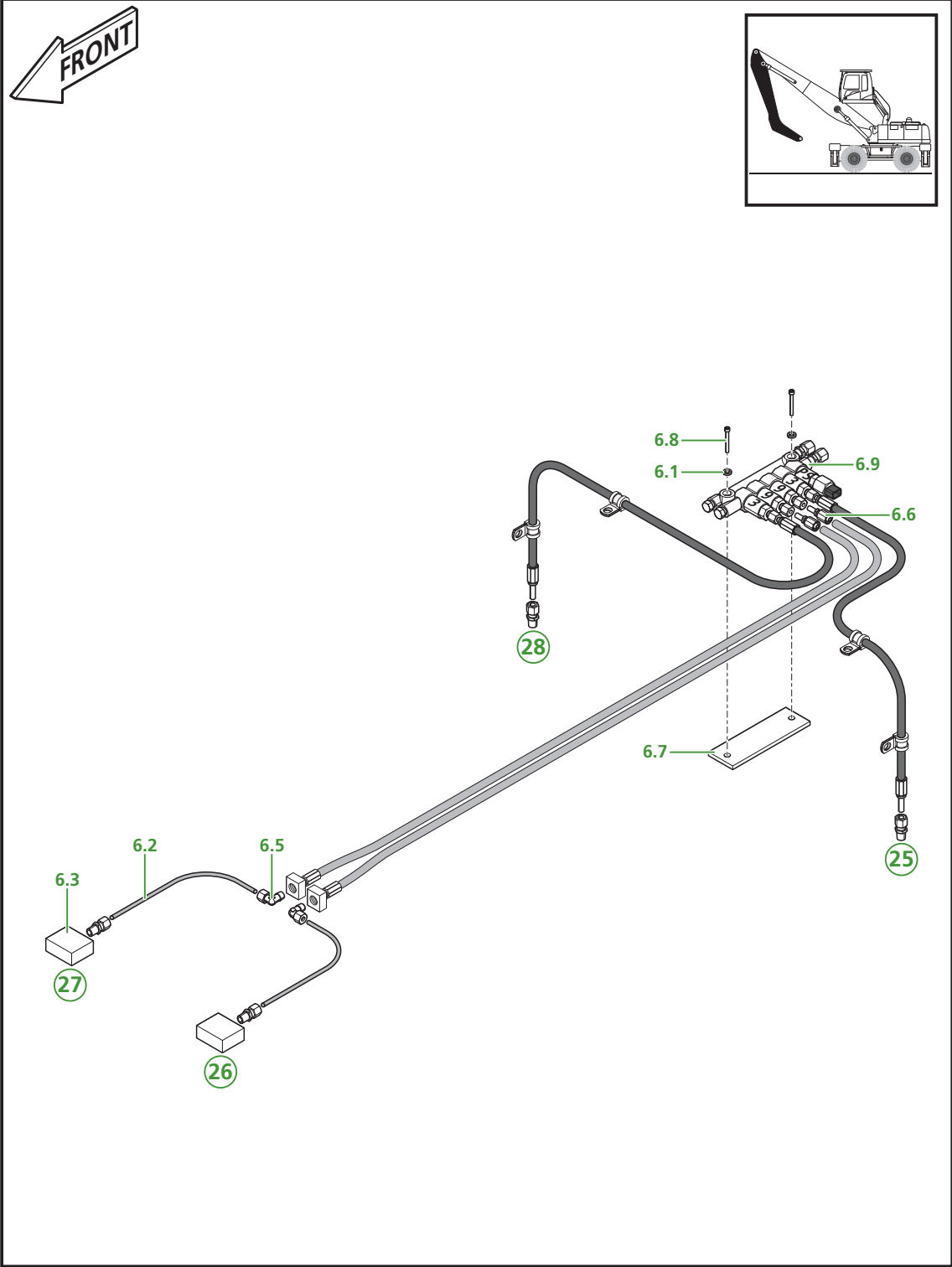
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Material Handler Caterpillar M325C MH/LMH

Parts list

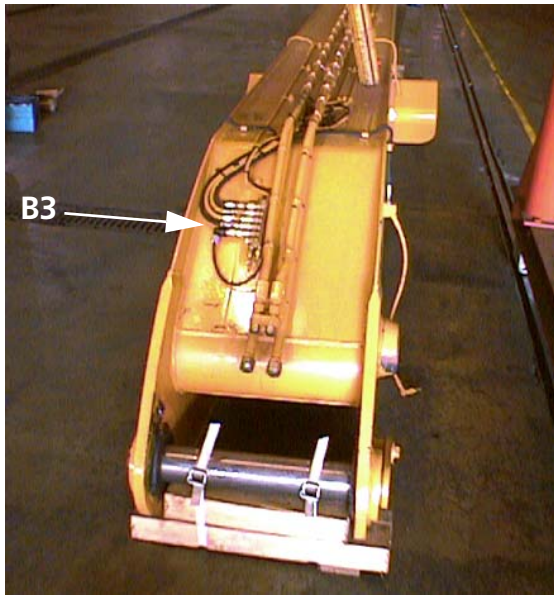
5.3 F210858 Installation kit Twin 5-port block / F210857 B3

<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
6.1	2	09202	Serrated lock washer M6
6.2	2m	31902	Tube ø6 x 1mm ST-G
6.3	2	22502	Welding block G1/8", 20mm
6.4	4	43402	Male stud coupling 1/8" - ø6mm ST-G
6.5	2	43802	Male stud elbow 1/8" - ø6mm ST-G
6.6	2	05817	Hose end fitting 1/4" - ø6mm ST-G
6.7	1	08917	Welding plate 5-port block
6.8	2	126030	Allen bolt M6 x 30 ST-G
6.9	1	F210857	Twin 5-port block, complete

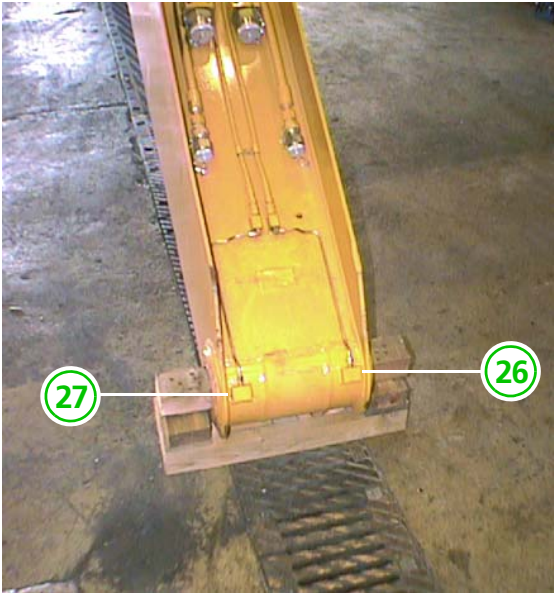


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Material Handler Caterpillar M325C MH/LMH



Material Handler Caterpillar M325C MH/LMH



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Material Handler Caterpillar M325C MH/LMH

Notes

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6.

INSTALLATION MAIN LINE



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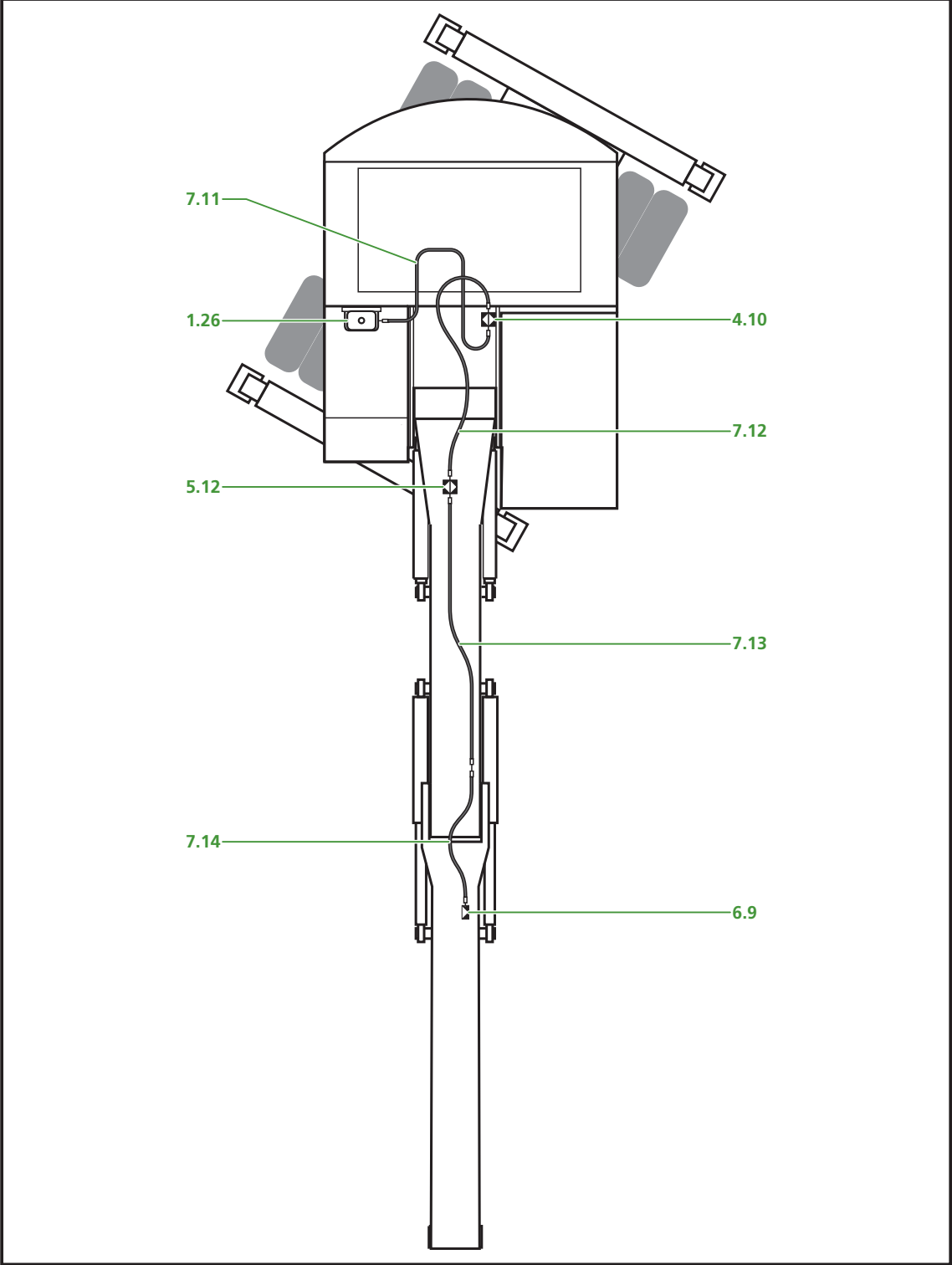
Material Handler Caterpillar M325C MH/LMH

Parts list

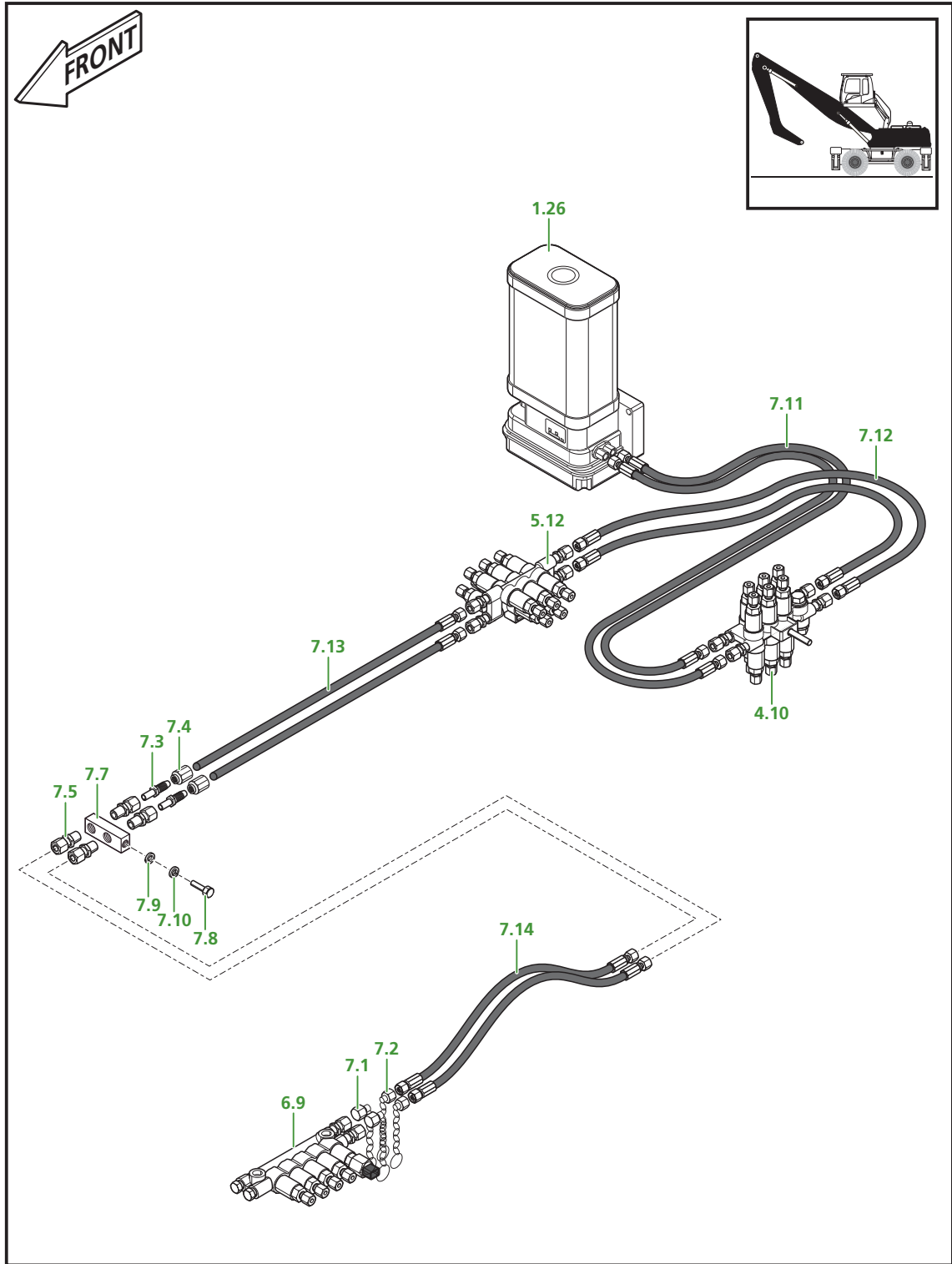
6.1 F179368 Twin Main line kit Caterpillar M325C MH/LMH

<i>Pos.</i>	<i>Q'ty</i>	<i>Groeneveld order number</i>	<i>Description</i>
7.1	2	50601	Tube plug male ø10mm
7.2	2	50701	Tube plug female ø10mm
7.3	2	35802	Hose end fitting 3/8" - ø10mm ST-G
7.4	2	35902	Screw nut 3/8" ST-G
7.5	4	47202	Male stud coupling 1/4" - ø10mm ST-G
7.6	100	11107	Cable tie, black 338mm
7.7	1	06812	Bracket 2 x G1/4" - M10x1,5
7.8	1	101040	Hexagonal bolt M10 x 40 ST-G
7.9	1	300010	Plain washer M10 ST-G
7.10	1	330010	Spring washer M10 ST-G
7.11	2	880058	High-pressure hose 3/8" S10-3400-S10 H1
7.12	2	F178399	High-pressure hose 3/8" S10-3000-S10 H2
7.13	2	F174066	High-pressure hose 3/8" S10-8000-nothing H3
7.14	2	810191	High-pressure hose 1/4" S10-2000-S10 H4

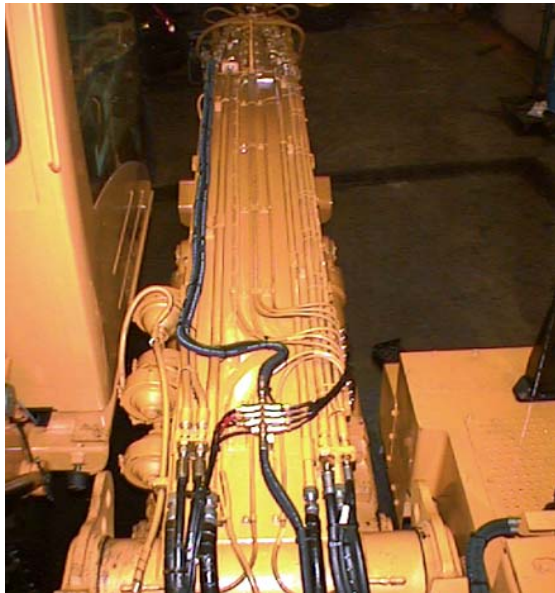
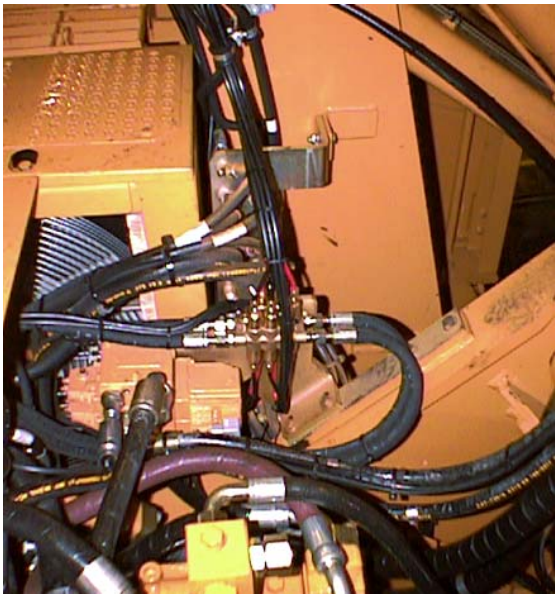
Material Handler Caterpillar M325C MH/LMH



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Material Handler Caterpillar M325C MH/LMH



F210859R00

Installation main line

7.

PARAMETER SETTINGS



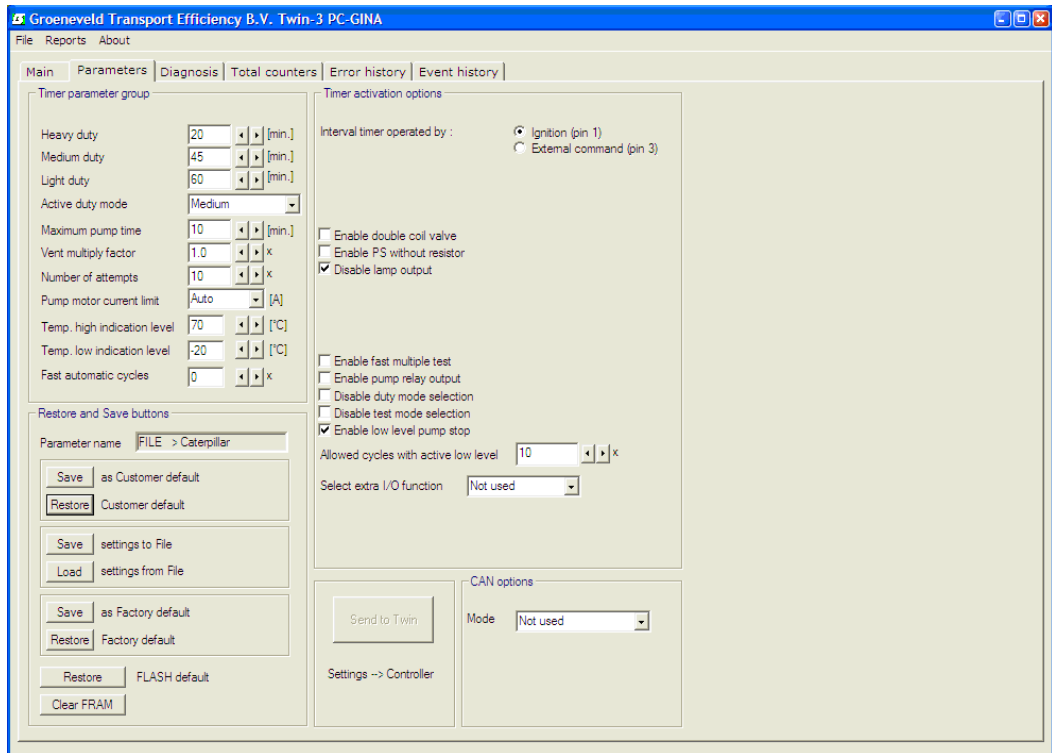
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Material Handler Caterpillar M325C MH/LMH

Parameter settings



Consumption metering units each cycle : 6.60 cc

8.

TESTING OF THE SYSTEM



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Testing of the system



Warning

Only operate machine when fully familiar with the controls and permission of the person in charge at the working place.

- Remove the end-plugs out of the distributions blocks.

De-aerate pipe A

- Start the pump manually with the Gina; leave the 5/2 magnet valve non-excited (exit A).
- Close the distribution blocks with an end-plug as soon as main pipe (A) is completely clear of air and dirt.
- Stop the pump.
- Remove main pipe A.

De-aerate pipe B

- Mount main pipe (B) on exit A of the pump.
- Start the pump manually with the Gina; leave the 5/2 magnet valve non-excited (exit A).
- Close the distribution blocks with an end-plug as soon as main pipe (B) is completely clear of air and dirt.
- Stop the pump.
- Connect main pipe (B) to exit B and main pipe (A) to exit A.

Accelerated test

- Start an accelerated test by means of the test button on the pump or with the GINA.
- Check the main pipe for leakage.
- Check if all the grease points are provided with grease.
- Terminate the accelerated test by switching off the ignition.
- Switch the machine back on.
- Operate the machine in all positions and check if all the parts of the Twin-lubrication have enough tolerance and do not jam or scrape.
- Check the timer settings by means of the GINA (if available).
- Shut the machine down.



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