

9m



Kelly

Tillage System 9m Assembly Manual

Revision D - May 2018

Serial Number:

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Thank you for choosing a Kelly Engineering product

We trust that you find the following manual clear and easy to follow. If you should require additional customer support or assistance, please do not hesitate to contact us.

Spare parts can be purchased, as required, through your local dealer or by contacting Kelly Engineering Australia or in the United States, Hood & Company.

Kelly Engineering welcomes feedback. Should you have any difficulties that you wish to raise, suggestions for improvement or modifications that you feel would enhance our products we look forward to hearing from you.

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Symbols



This symbol indicates which way the machine is travelling

Section 1

Unpacking

Unpacking

We recommend that a crane and forklift truck be available for unloading and assembly



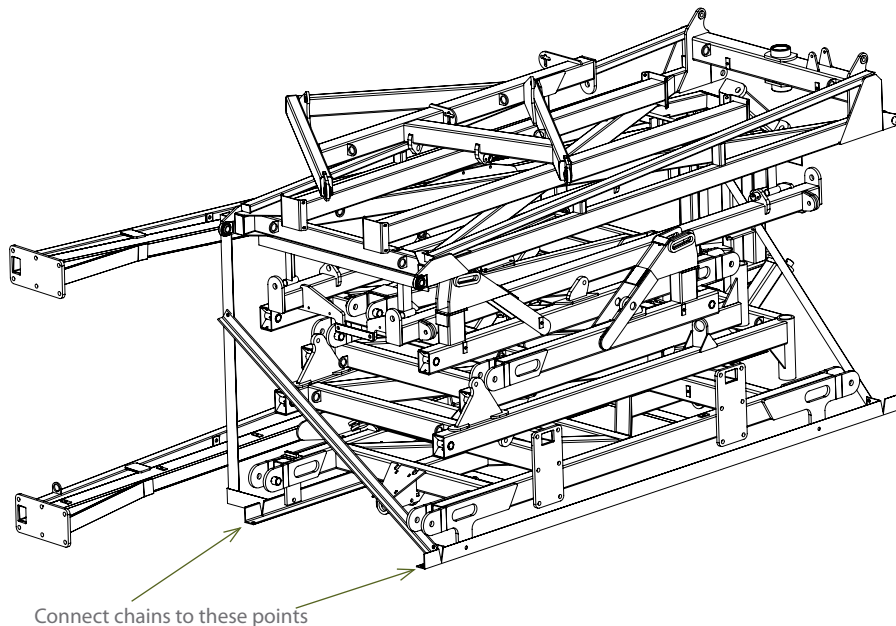
- Before opening shipping container inspect exterior for any damage. Remove seal and open container doors.

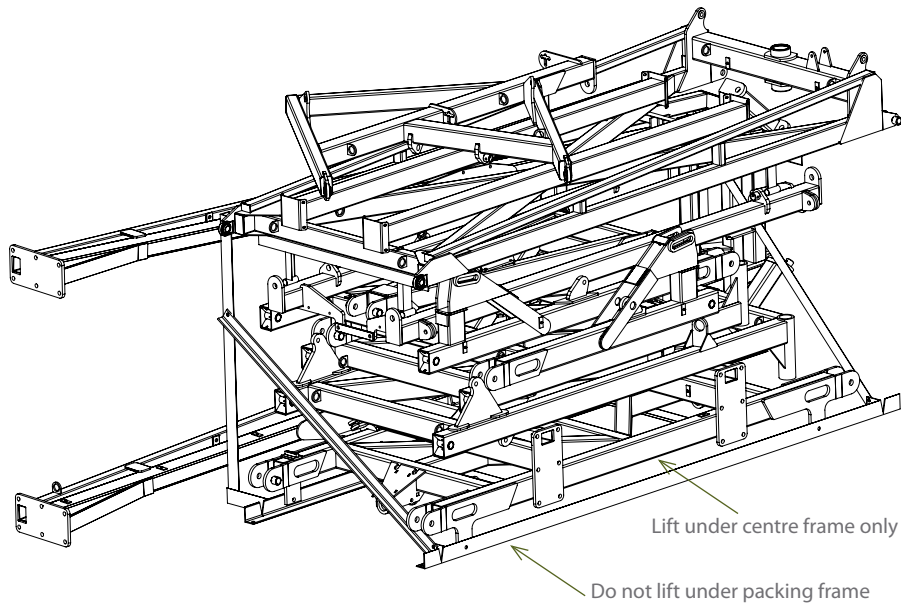


CAUTION

Take care when opening doors as load may have shifted or restraints may have broken.

- Remove boxes from doorway of container one at a time using a forklift truck. Each box weighs approximately 2600 lbs 91200kg)
- Check strapping on each bundle before attempting to remove
- Attach chains to the packing frame using shackles and using suitable equipment (eg. fork-lift or tractor) drag framework bundles out of container. To move bundles away from front of container lift from side with forklift. Do not lift under angle iron frame, lift only under centre frame. Each bundle weighs approximately 7000 lb (3200 kg).





CAUTION

Before cutting straps attach slings or chains and take the weight of the frames to avoid them slipping or falling and causing injury.



CAUTION

Wear eye and hand protection when cutting straps. Sharp edges are exposed as straps separate and may cause injury.



CAUTION

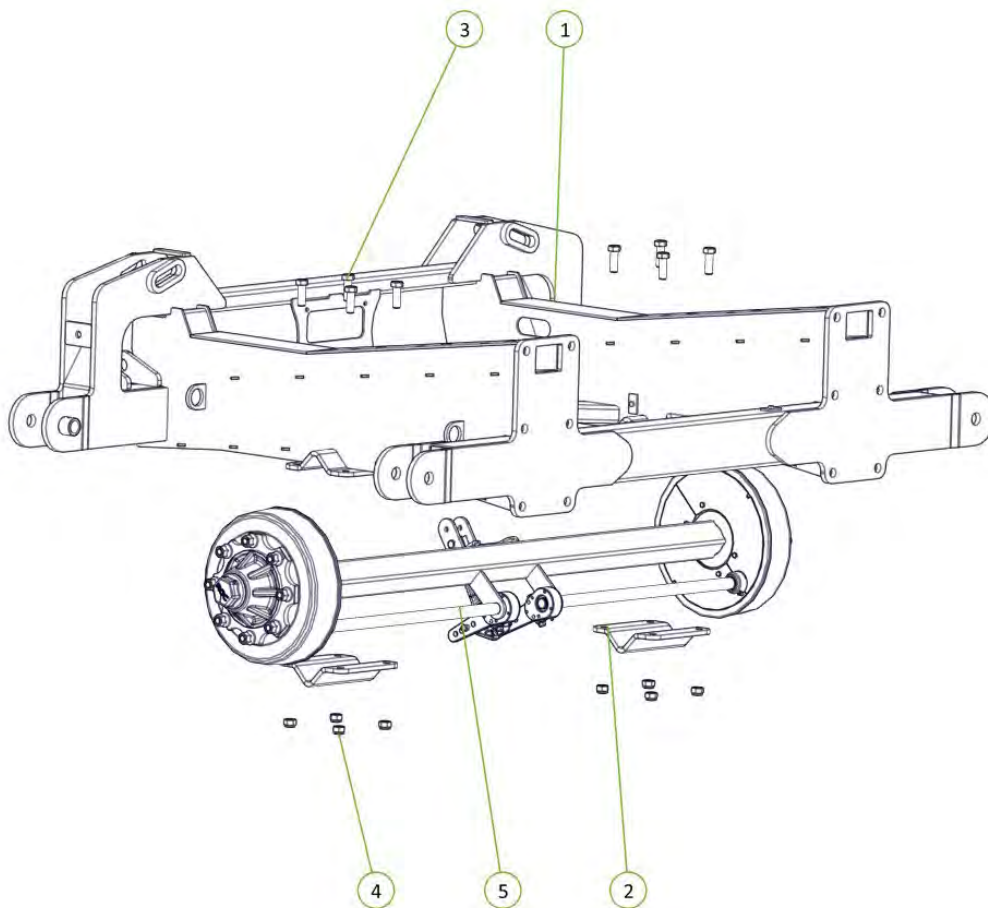
To avoid falling or moving components, before cutting straps attach slings or chains to individual pieces and only cut the straps holding the piece to be lifted.

- Remove boxes from rear of container one at a time using a forklift truck. Each box weighs approximately 2600 lbs (1200 kg)
- Identify parts for each machine by serial no. or description and separate. Open parts box and check that all parts are accounted for against checklist
- Cut straps holding bundles and separate parts and place in assembly area
- Once all parts have been identified machines are ready for assembly
- Read assembly instructions before proceeding.

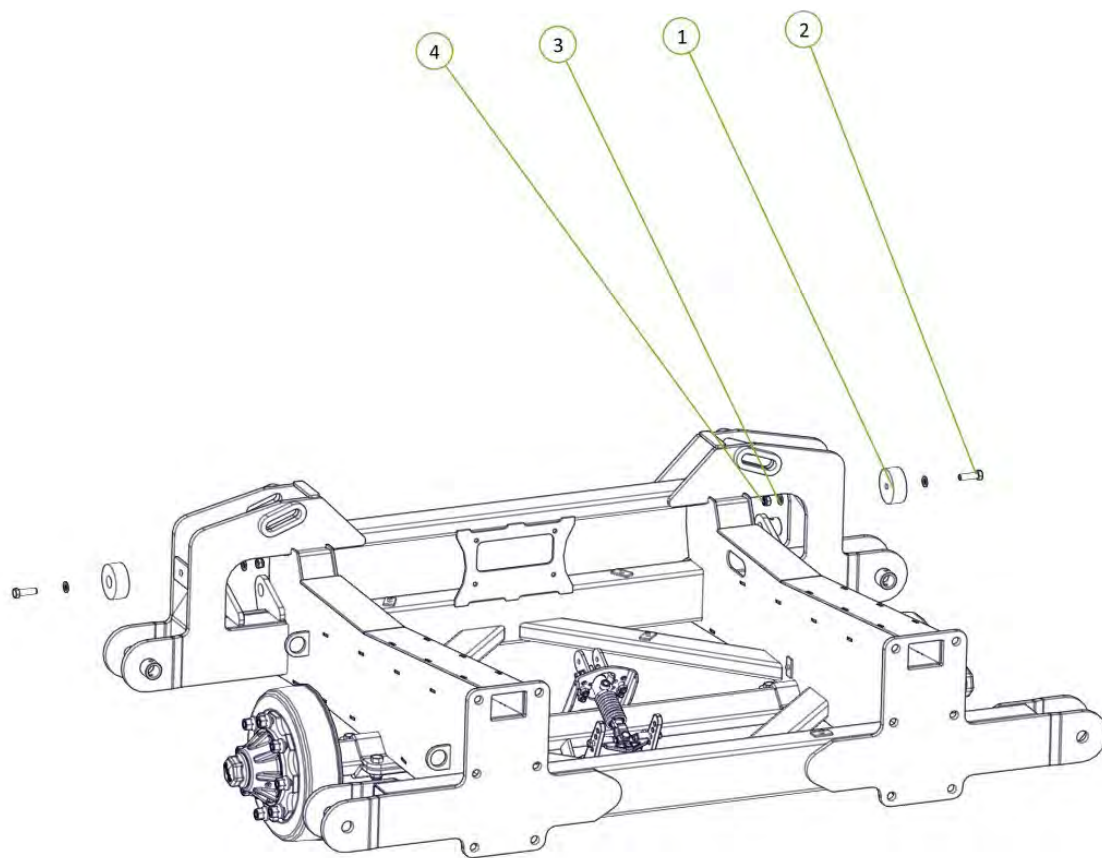
Section 2

Parts & Assembly

Item No.	Description	Qty	Number
1	9m Centre Frame	1	1530-01
2	Axle Mount Plate	2	1530-100
3	M20 x 60 grade 8.8 ZP Bolt	8	0211-2060
4	Nyloc Nut M20	8	0221-NYL20
5	808 XF 8 on 275 PCD 2006 OHF	1	0733-808XF400X80C-V2006

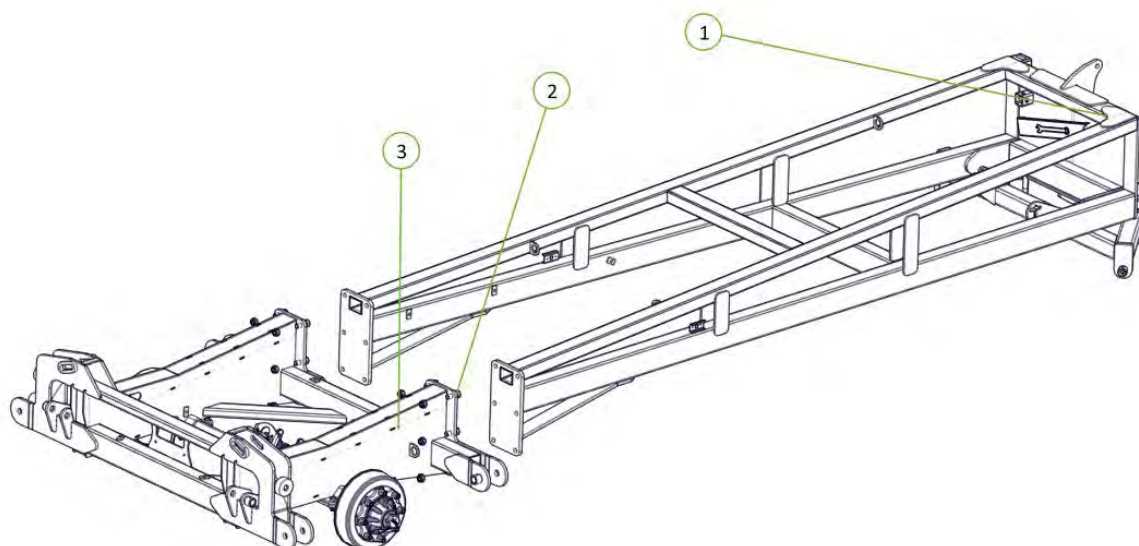


Item No.	Description	Qty	Number
1	Wing Folding Buffer	2	1201-12
2	M16 x 55 grade 8.8 zp Bolt	2	0211-1655
3	Washer Flat M16	4	0231-F16
4	Nyloc Nut M16	2	0221-NYL16



Travelling

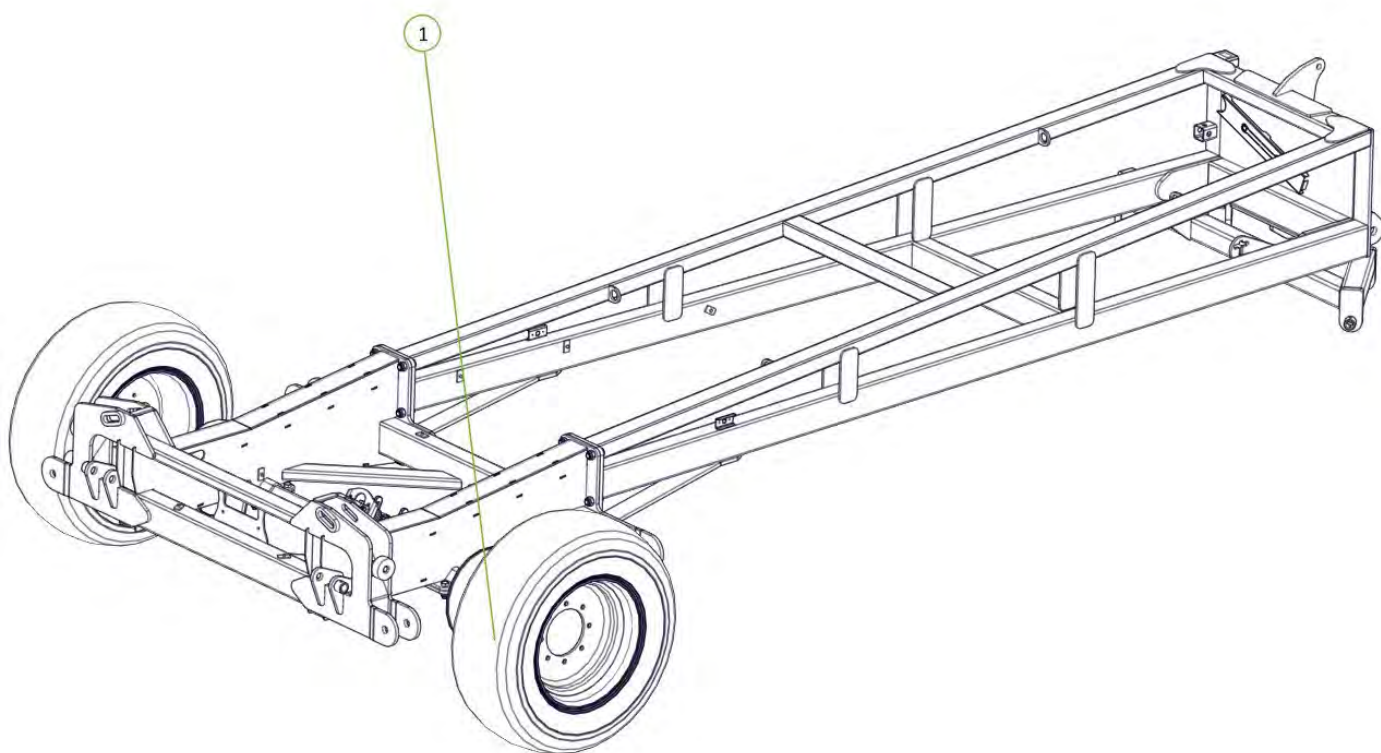
Item No.	Description	Qty	Number
1	9m Main Pull	1	1530-02
2	M24 x 65 grade 8.8 zp Bolt	12	0211-2465
3	Nyloc Nut M24	12	0221-NYL24



Travelling



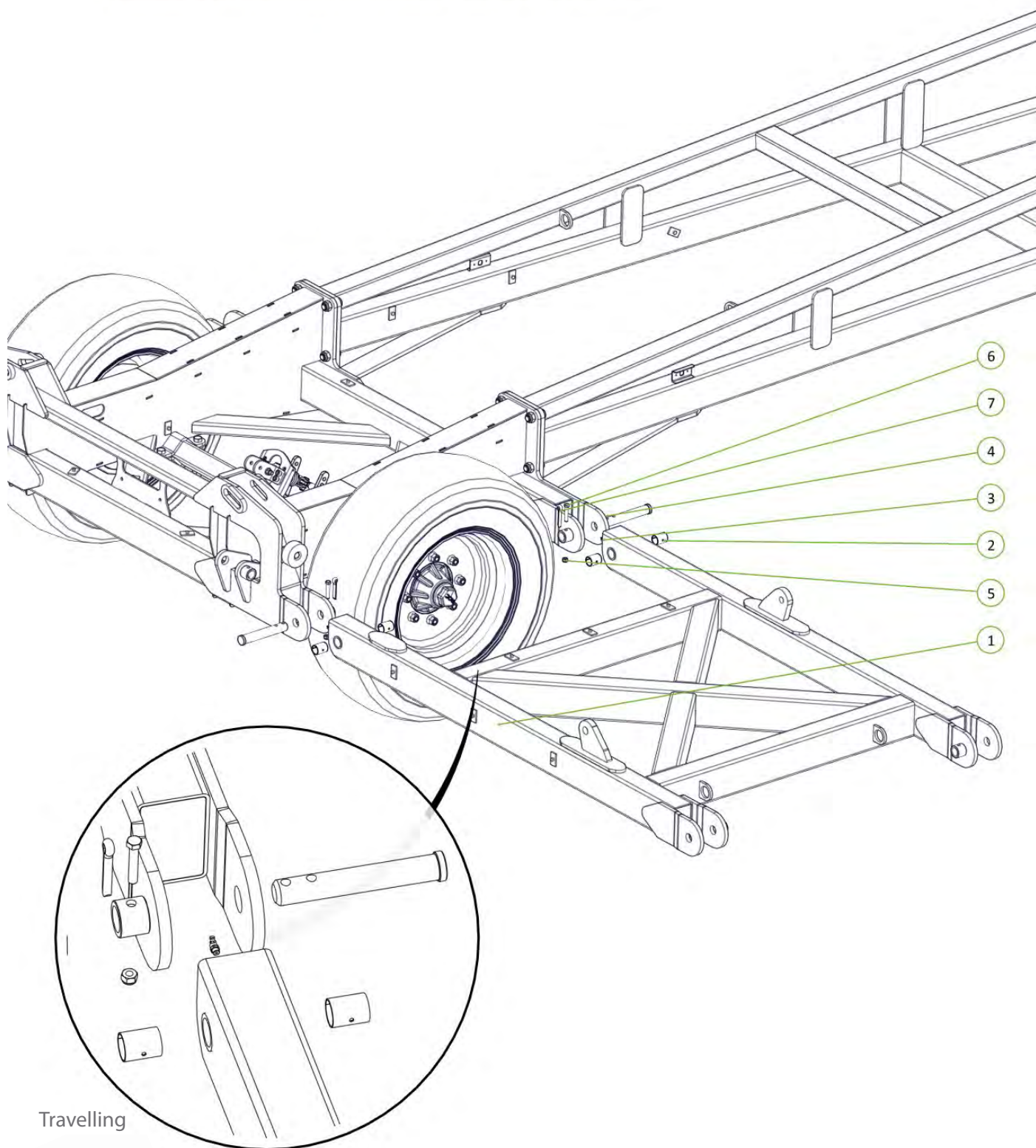
Item No.	Description	Qty	Number
1	400/60-22.5Tyre on 8 on 275 PCD Rim	2	0751-400-60-22.5TR



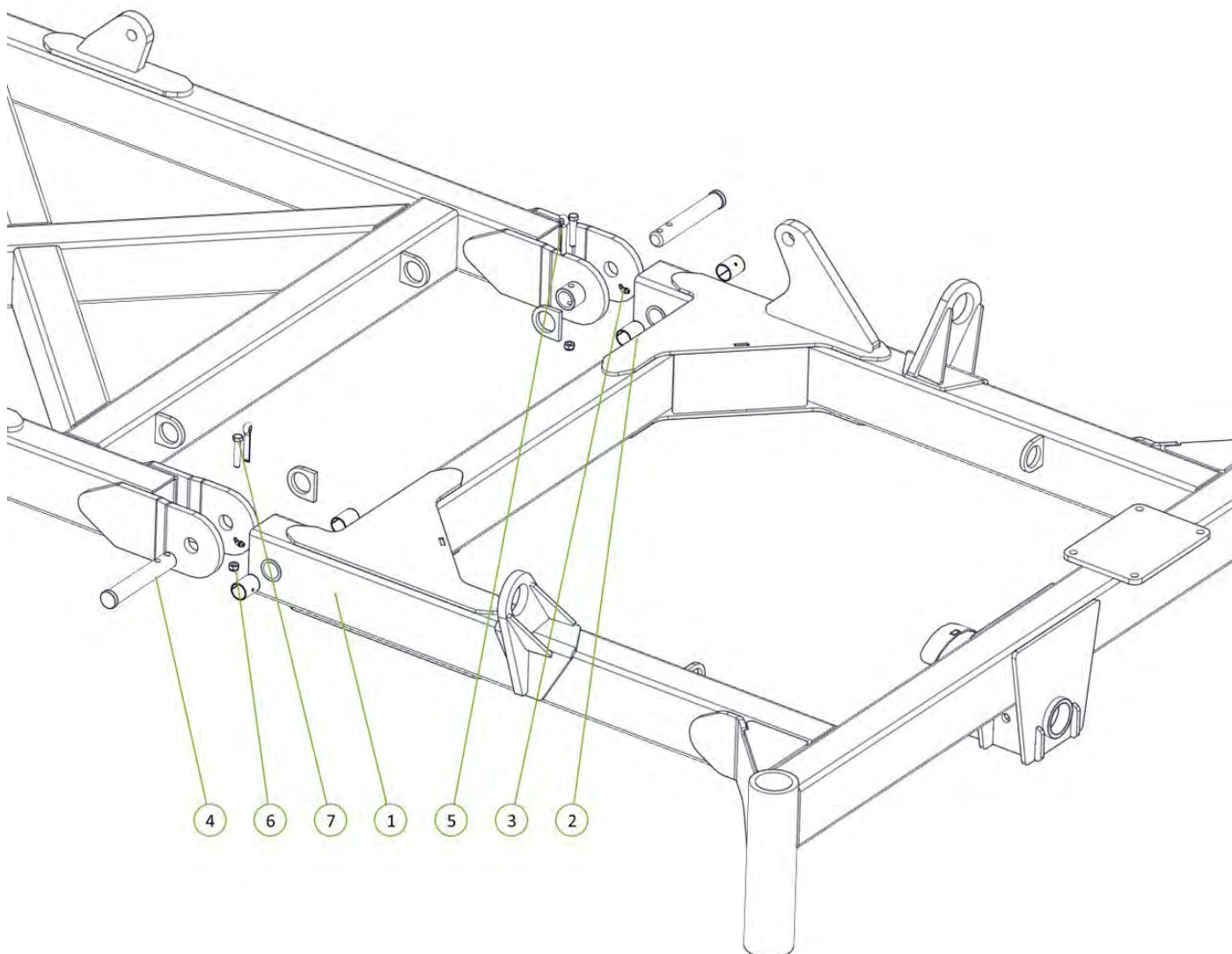
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Item No.	Description	Qty	Number
1	9M RH Inner Wing	1	1530-04
2	MB ID 35mm x 50mm DX Bush	4	0113-MB 3550DX
3	0181-GN1-845	2	0181-GN1-845
4	PCH Wing Pivot Pin	2	0801-10-08-235
5	M12 Nyloc Nut	2	0221-NYL12
6	M12 x 65 grade 8.8 ZP Bolt	2	0211-1265
7	COTTER PIN M13 X 63mm	2	0261-PINC1363



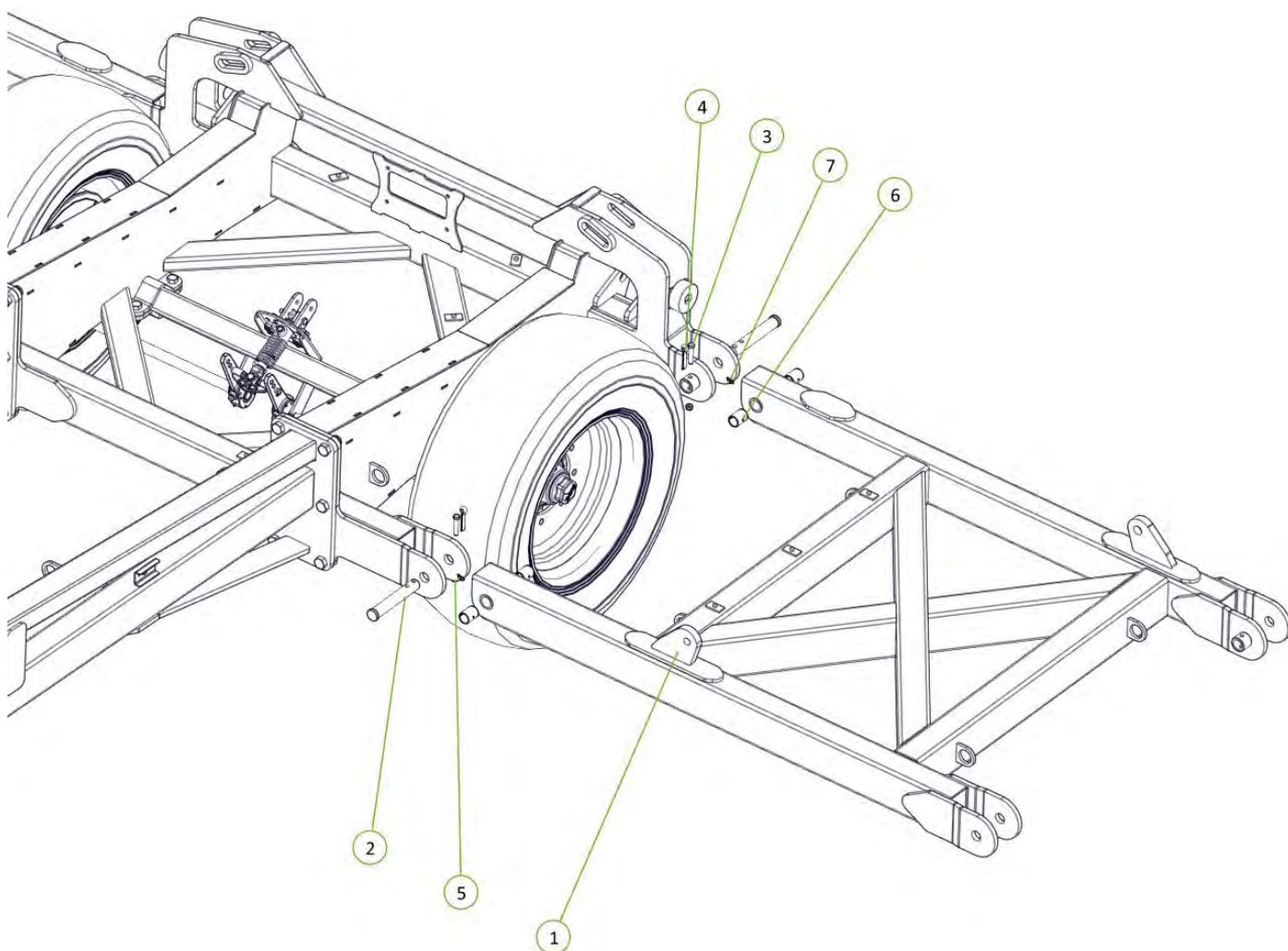
Item No.	Description	Qty	Number
1	9m RH Outer Wing	1	1530-06
2	MB ID 35mm x 50mm DX Bush	4	0113-MB 3550DX
3	Grease Nipple 1/8" BSP 45 Deg	2	0181-GN1-845
4	PCH Wing Pivot Pin	2	0801-10-08-235
5	COTTER PIN M13 X 63mm	2	0261-PINC1363
6	Nyloc Nut M12	2	0221-NYL12
7	M12 x 65 grade 8.8 ZP Bolt	2	0211-1265



Travelling



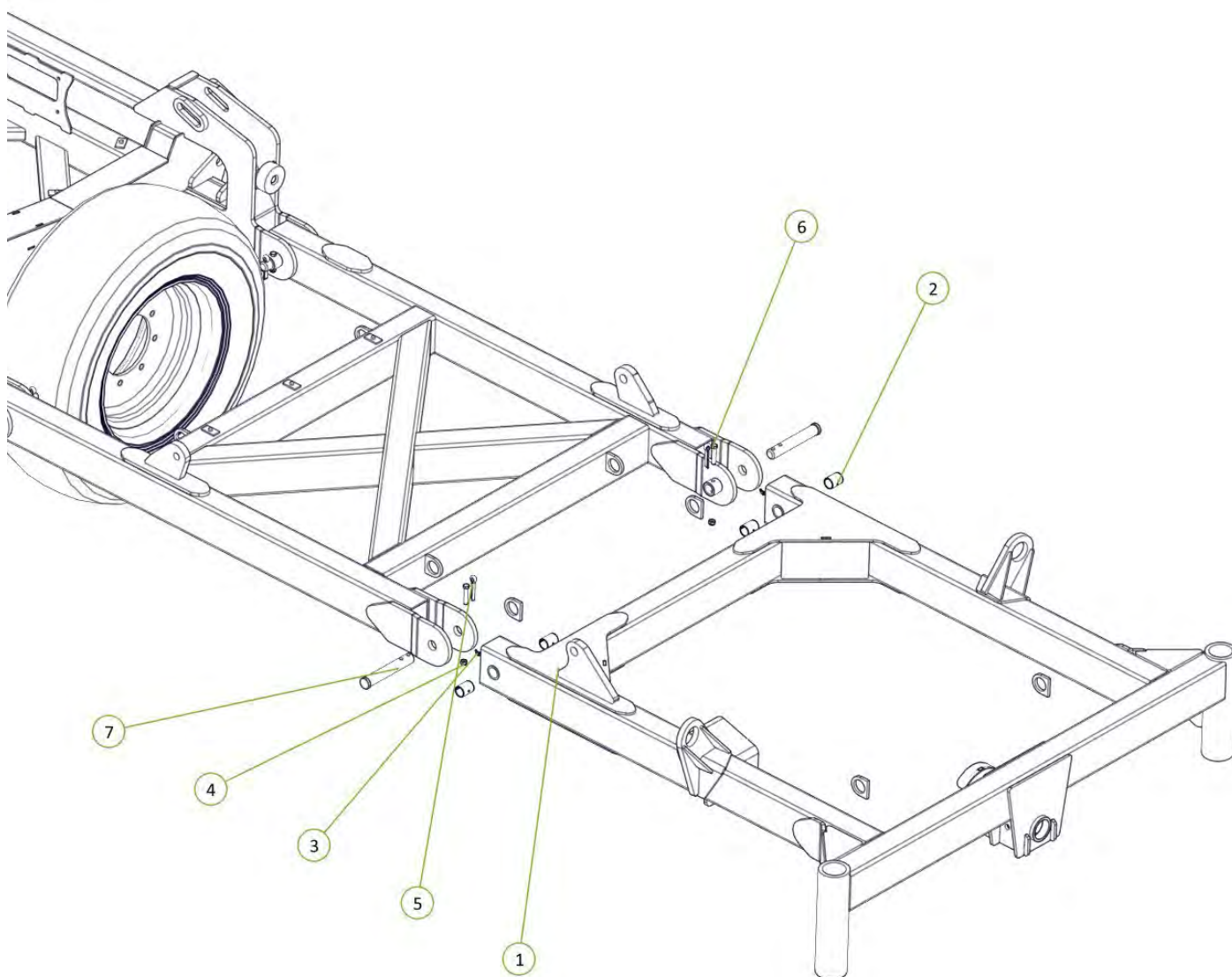
Item No.	Description	Qty	Number
1	9M LH Inner Wing	1	1530-05
2	PCH Wing Pivot Pin	2	0801-10-08-235
3	M12 x 65 grade 8.8 ZP Bolt	2	0211-1265
4	COTTER PIN M13 X 63mm	2	0261-PINC1363
5	M12 Nyloc Nut	2	0221-NYL12
6	MB ID 35mm x 50mm DX Bush	4	0113-MB 3550DX
7	Grease Nipple 1/8" BSP 45 Deg	2	0181-GN1-845



Travelling



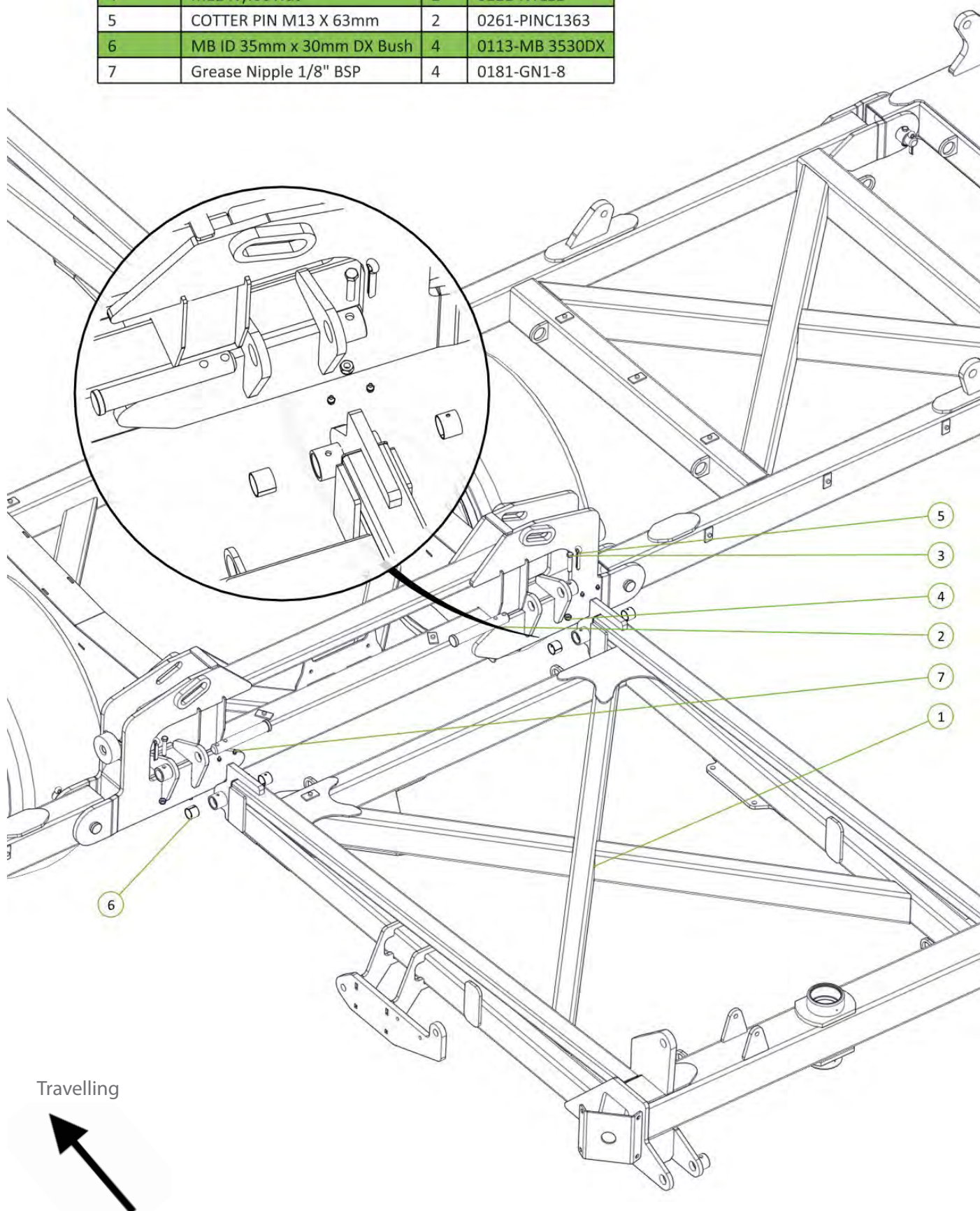
Item No.	Description	Qty	Number
1	9m LH Outer Wing	1	1530-07
2	MB ID 35mm x 50mm DX Bush	4	0113-MB 3550DX
3	Grease Nipple 1/8" BSP 45 Deg	2	0181-GN1-845
4	Nyloc Nut M12	2	0221-NYL12
5	COTTER PIN M13 X 63mm	2	0261-PINC1363
6	M12 x 65 grade 8.8 ZP Bolt	2	0211-1265
7	PCH Wing Pivot Pin	2	0801-10-08-235



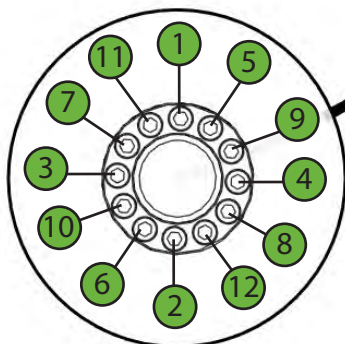
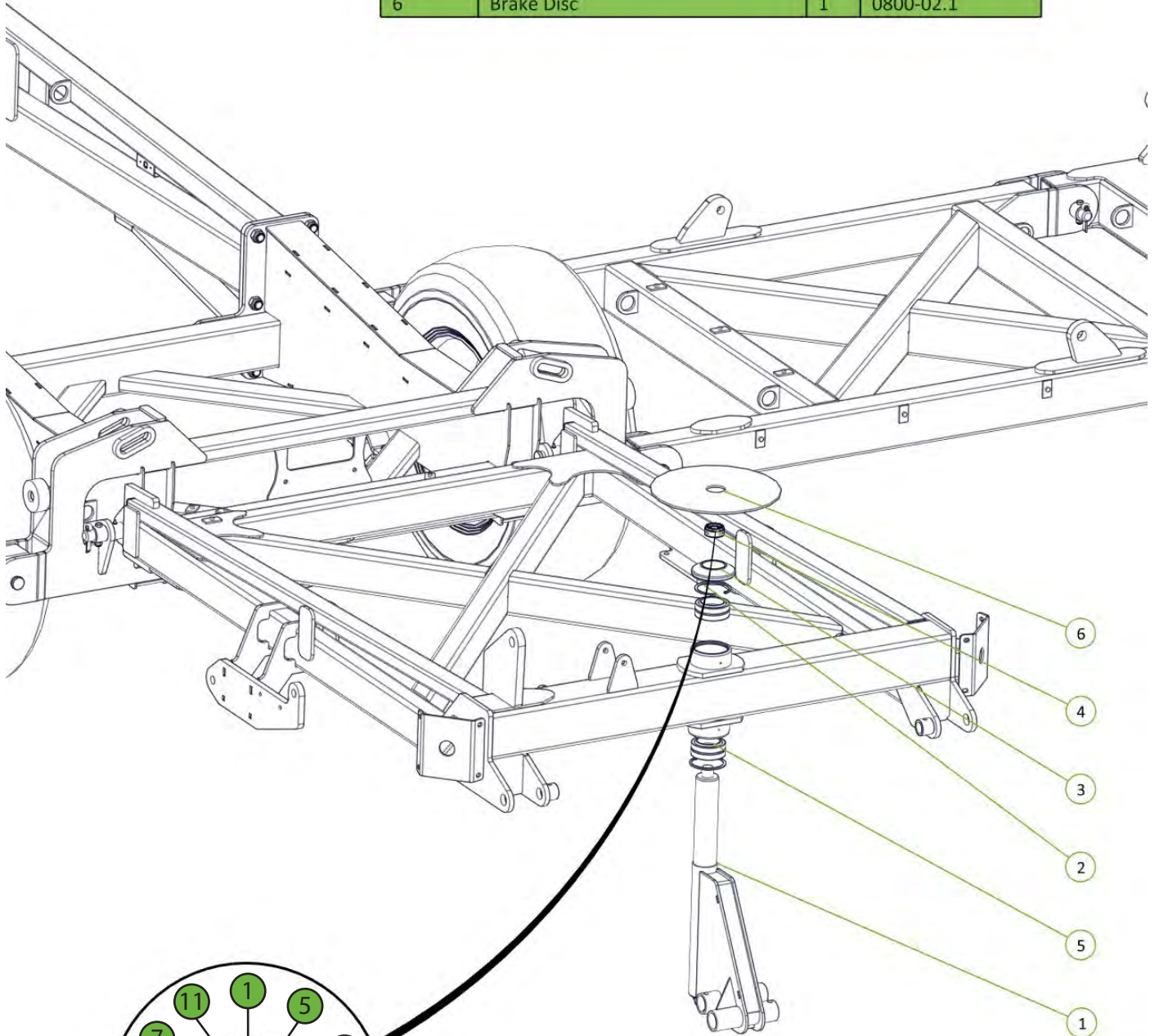
Travelling



Item No.	Description	Qty	Number
1	9m Rear A-Frame	1	1530-03
2	PCH Wing Pivot Pin	2	0801-10-08-235
3	M12 x 65 grade 8.8 ZP Bolt	2	0211-1265
4	M12 Nyloc Nut	2	0221-NYL12
5	COTTER PIN M13 X 63mm	2	0261-PINC1363
6	MB ID 35mm x 30mm DX Bush	4	0113-MB 3530DX
7	Grease Nipple 1/8" BSP	4	0181-GN1-8



Item No.	Description	Qty	Number
1	70mm Jockey Wheel	1	0810-11-70
2	Circlip Internal 105MM	2	0171-J105
3	70mm Polymer Dust cap	1	0801-KE0705-13
4	35mm Shaft Lock Clamping Element	1	0801-LOCK01-35
5	Plain Spherical Bearing 70mm	2	0113-GE70DO-2RS
6	Brake Disc	1	0800-02.1



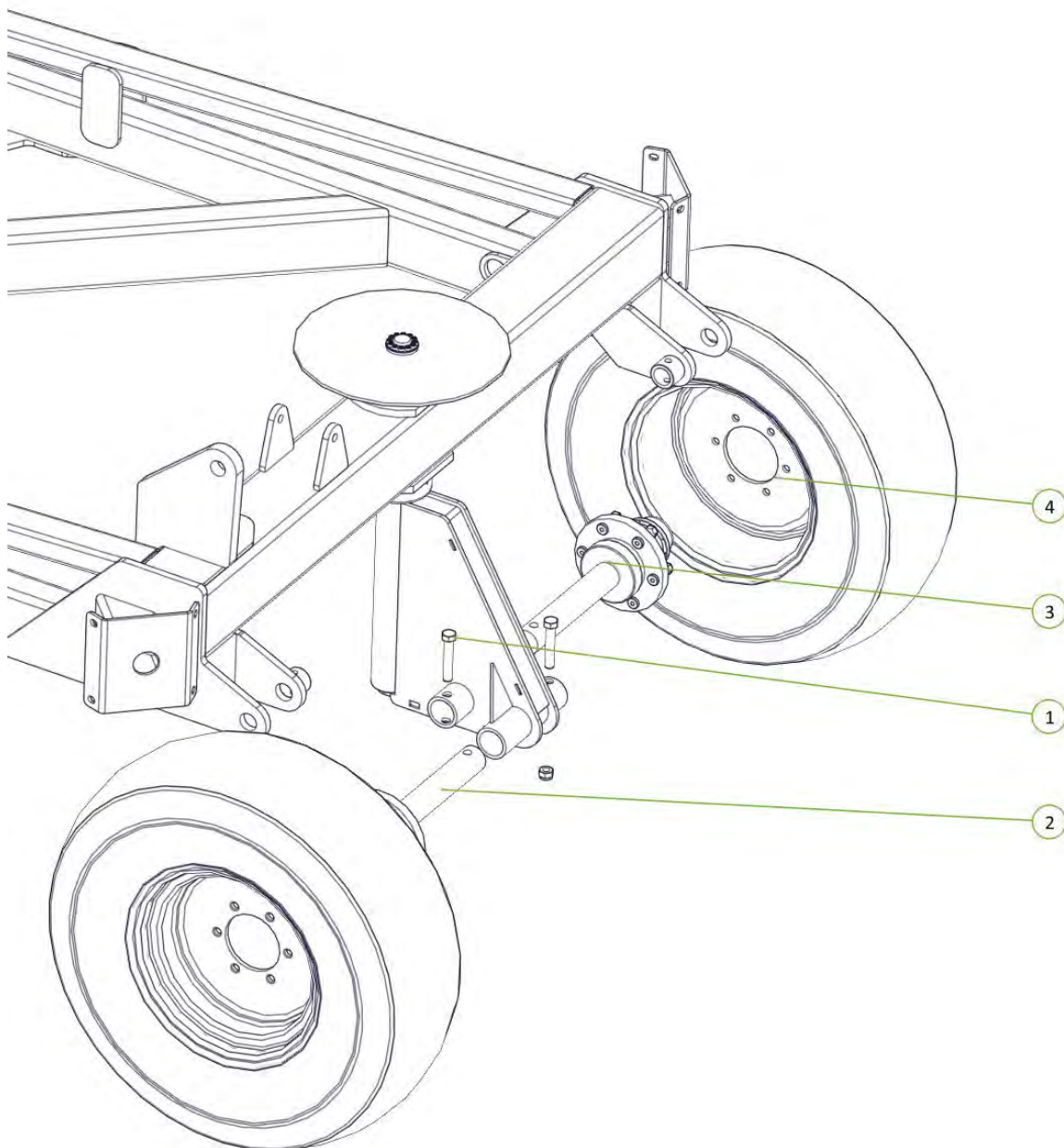
Tighten in a cross pattern,
bring all bolts up equally to 17Nm (12.54Ft/Lbs)

(CAUTION if a single bolt is done up to tension
there is a risk of the bolt breaking)

Travelling

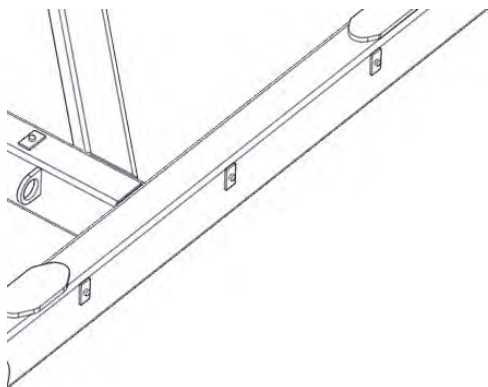


Item No.	Description	Qty	Number
1	M16 x 90 grade 8.8 zp Bolt	2	0211-1690
2	Nyloc Nut M16	2	0221-NYL16
3	Axle 2"R 3T 6 on 6"PCD 330 OHF	2	0733-K5083T66S
4	11L15F3 Tyre On Rim	2	0751-11L15

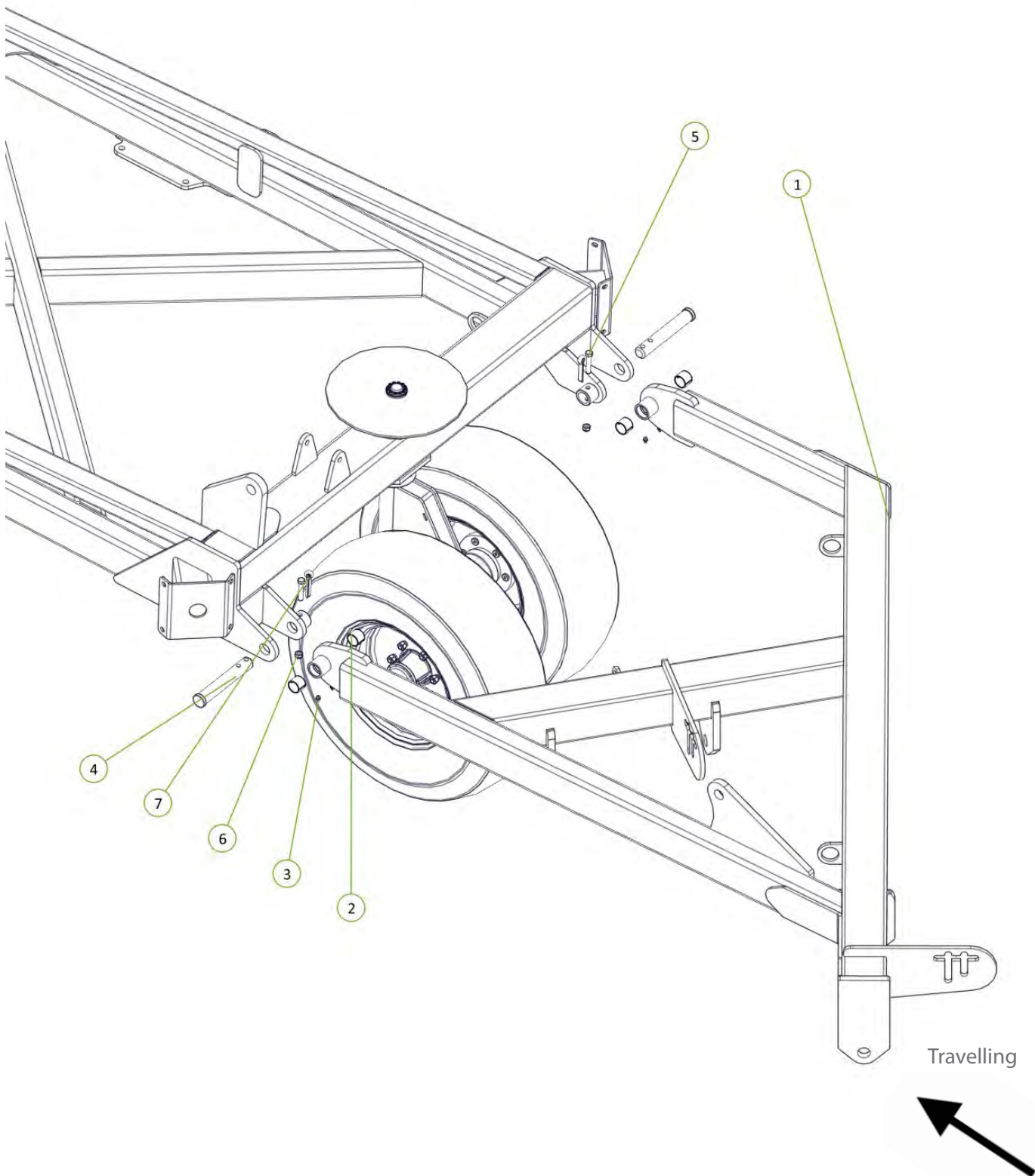


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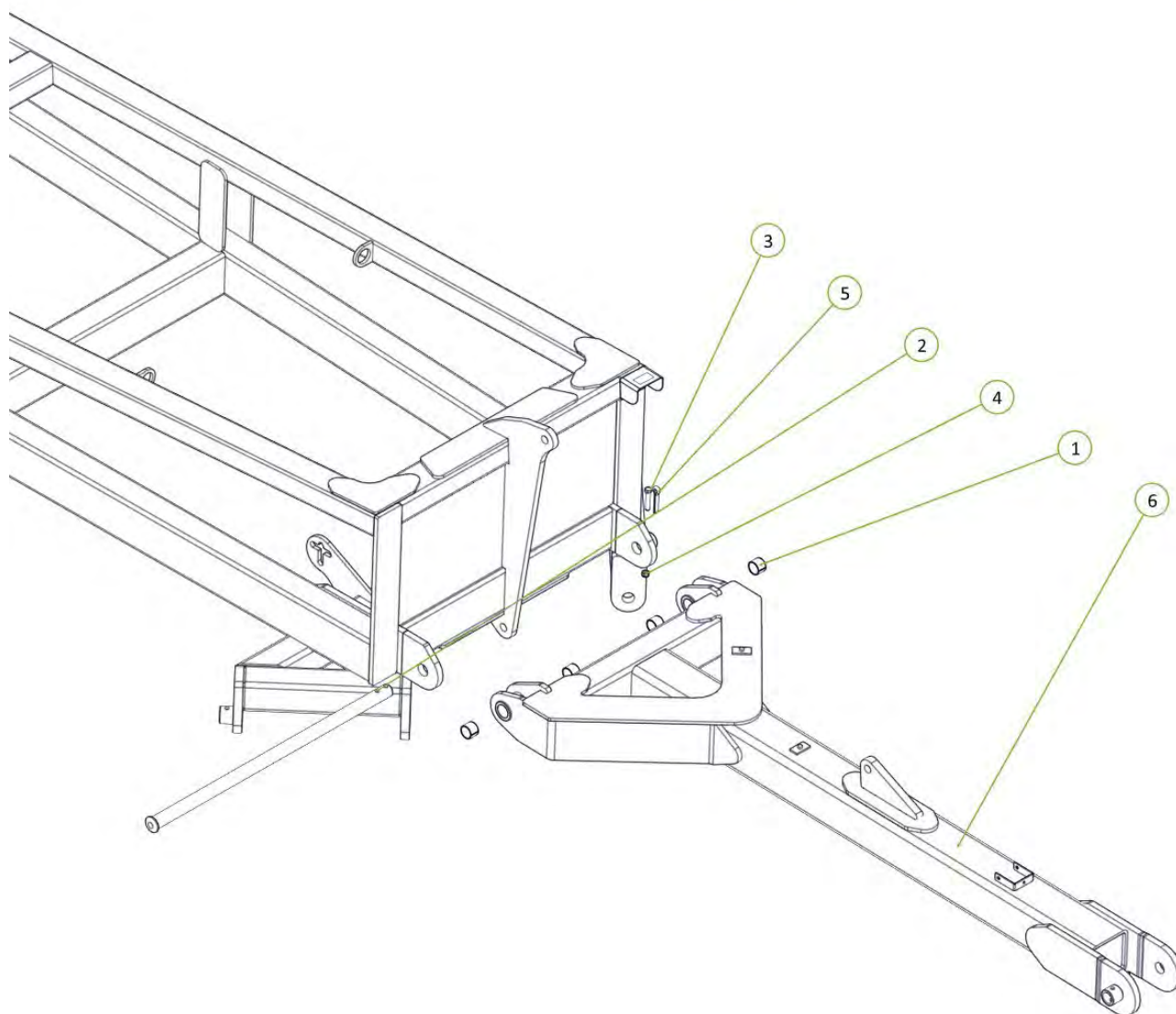




Item No.	Description	Qty	Number
1	9m/12m Rear Tail	1	1510-10
2	MB ID 35mm x 30mm DX Bush	4	0113-MB 3530DX
3	Grease Nipple 1/8" BSP	4	0181-GN1-8
4	PCH Wing Pivot Pin	2	0801-10-08-235
5	M12 x 65 grade 8.8 ZP Bolt	2	0211-1265
6	Nyloc Nut M12	2	0221-NYL12
7	COTTER PIN M13 X 63mm	2	0261-PINC1363



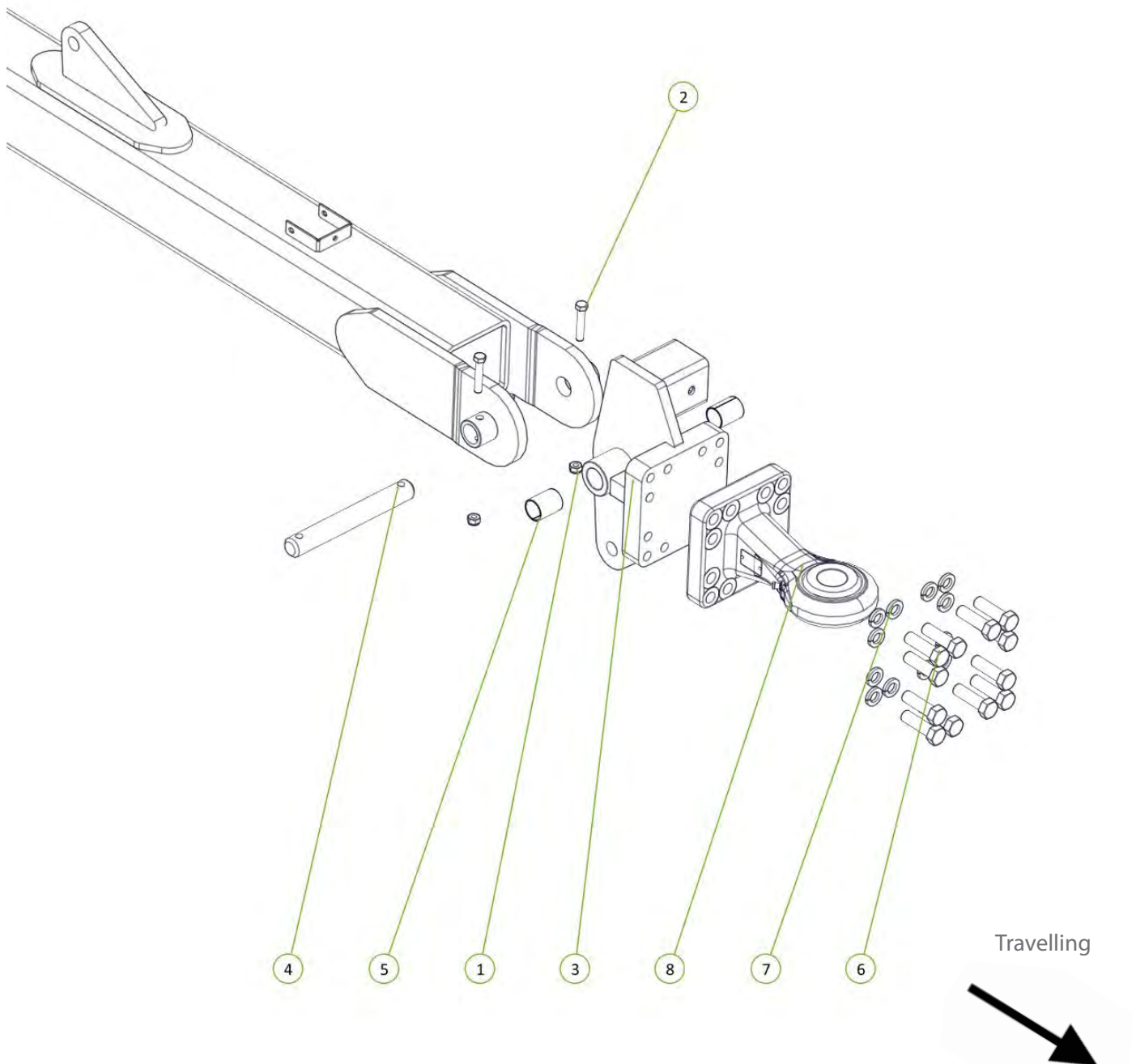
Item No.	Description	Qty	Number
1	1-1/2 ID x 1-1/4" DU Bush	4	0113-MB 24DU20
2	Drawbar Pivot Pin	1	0801-10-13-970
3	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
4	Nyloc Nut M12	1	0221-NYL12
5	COTTER PIN M13 X 63mm	1	0261-PINC1363
6	Drawbar Assembly	1	1530-08



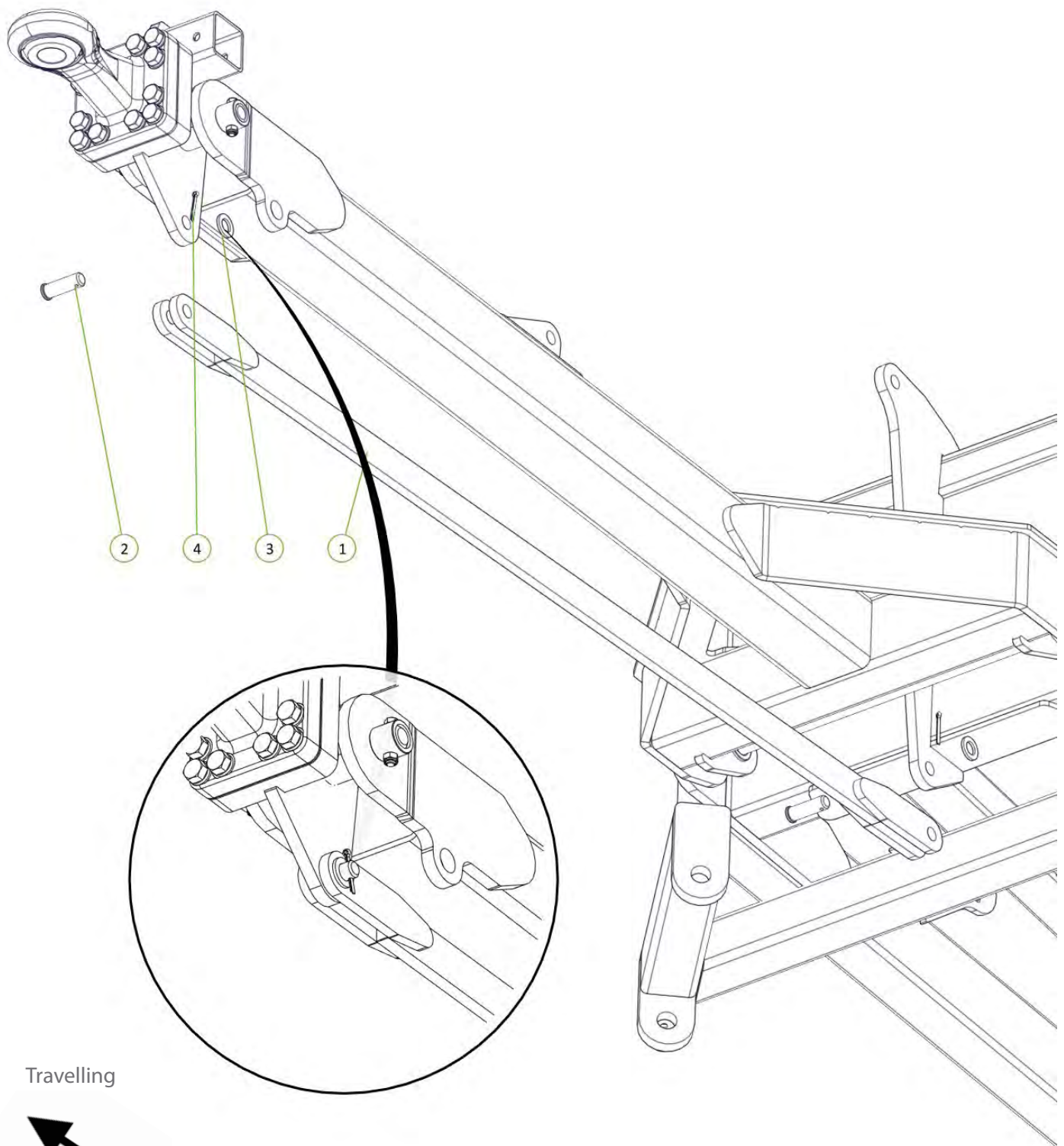
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Item No.	Description	Qty	Number
1	Nyloc Nut M12	2	0221-NYL12
2	M12 x 65 grade 8.8 ZP Bolt	2	0211-1265
3	Flange Mount Tow Hitch	1	1510-09
4	Tow Hitch Pivot Pin	1	0801-10-06
5	35mm 50 Long DU Bush	2	0113-MB 3550DU
6	M20 x 70 grade 10.9 ZP Bolt	12	0211-2070
7	Spring Washer M20	12	0231-S20
8	51mm Cat 4 Flange Mount Hitch	1	0802-00.665.17.1

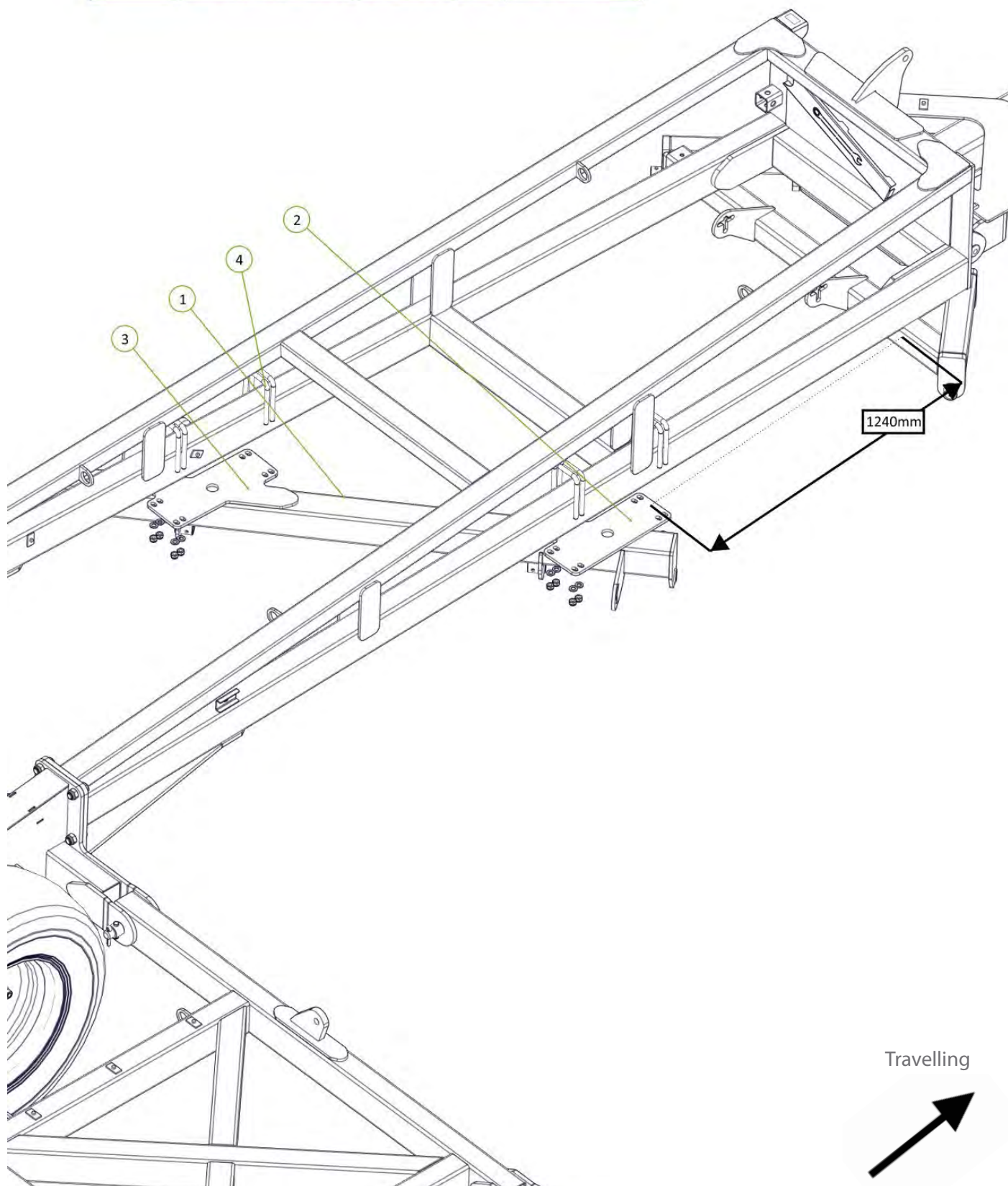


Item No.	Description	Qty	Number
1	Parrallel Arm	1	0810-22
2	Clevis Pin 25mm x 75mm	2	0801-KE0307-1
3	Washer Flat M24	2	0231-F24
4	M6 x 50 Cotter Pin	2	0261-PINC650

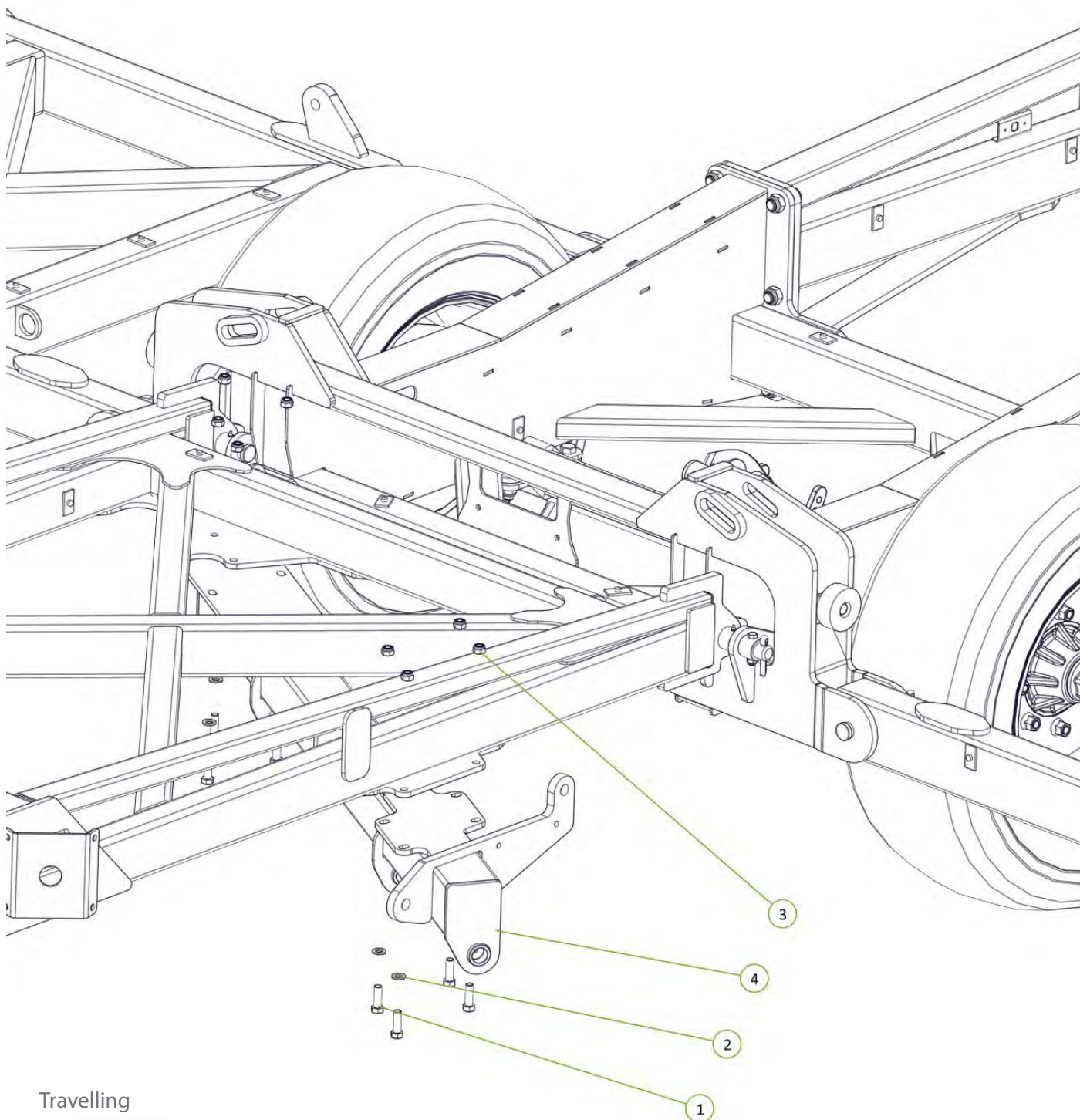


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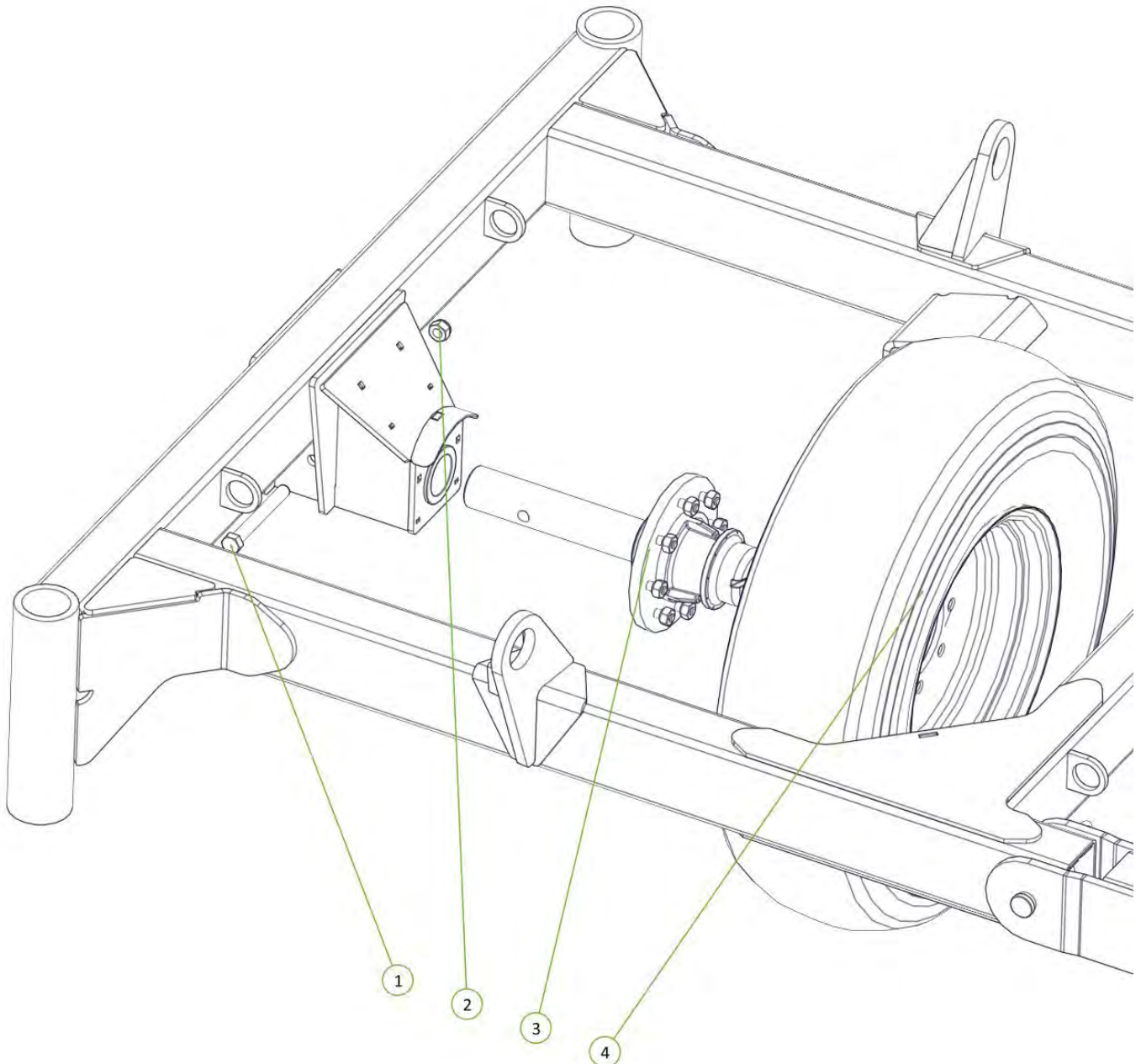
Item No.	Description	Qty	Number
1	9m/12m Front Module	1	1510-28-30
2	Washer Flat M16	16	0231-F16
3	Nyloc Nut M16	16	0221-NYL16
4	U-Bolt M16 x 185 Deep x 104 Wide	8	0271-16185104



Item No.	Description	Qty	Number
1	M16 x 50 grade 8.8 zp Bolt	8	0211-1650
2	Washer Flat M16	8	0231-F16
3	Nyloc Nut M16	8	0221-NYL16
4	9m/12m Rear Module	1	1510-29-30



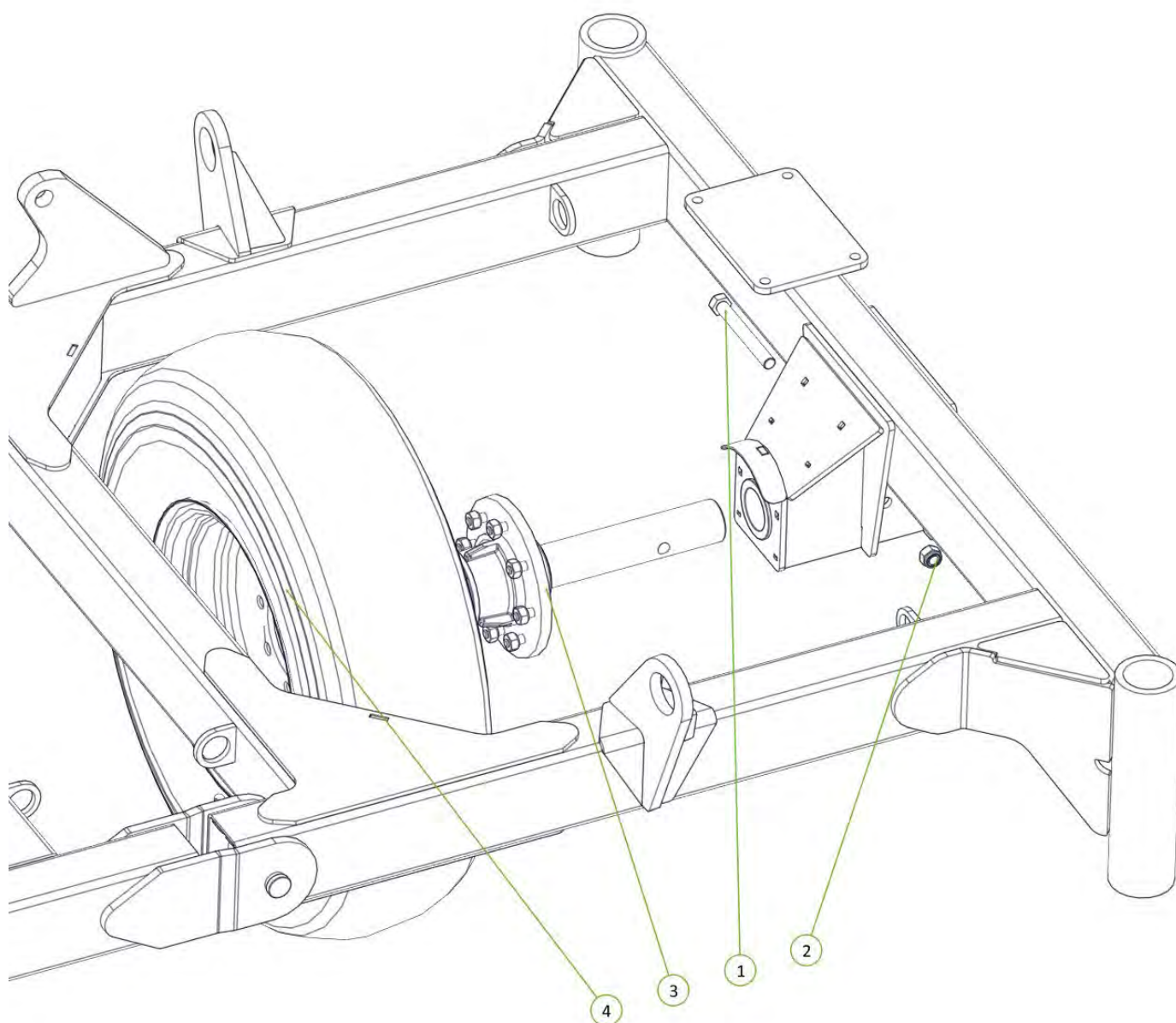
Item No.	Description	Qty	Number
1	M20 x 170 grade 8.8 ZP Bolt	1	0211-20170
2	Nyloc Nut M20	1	0221-NYL20
3	2.75"R C/W 6 tonne 8 on 8" PCD	1	0733-SH27596880
4	400/60-22.5Tyre on 8 on 275 PCD Rim	1	0751-400-60-22.5TR



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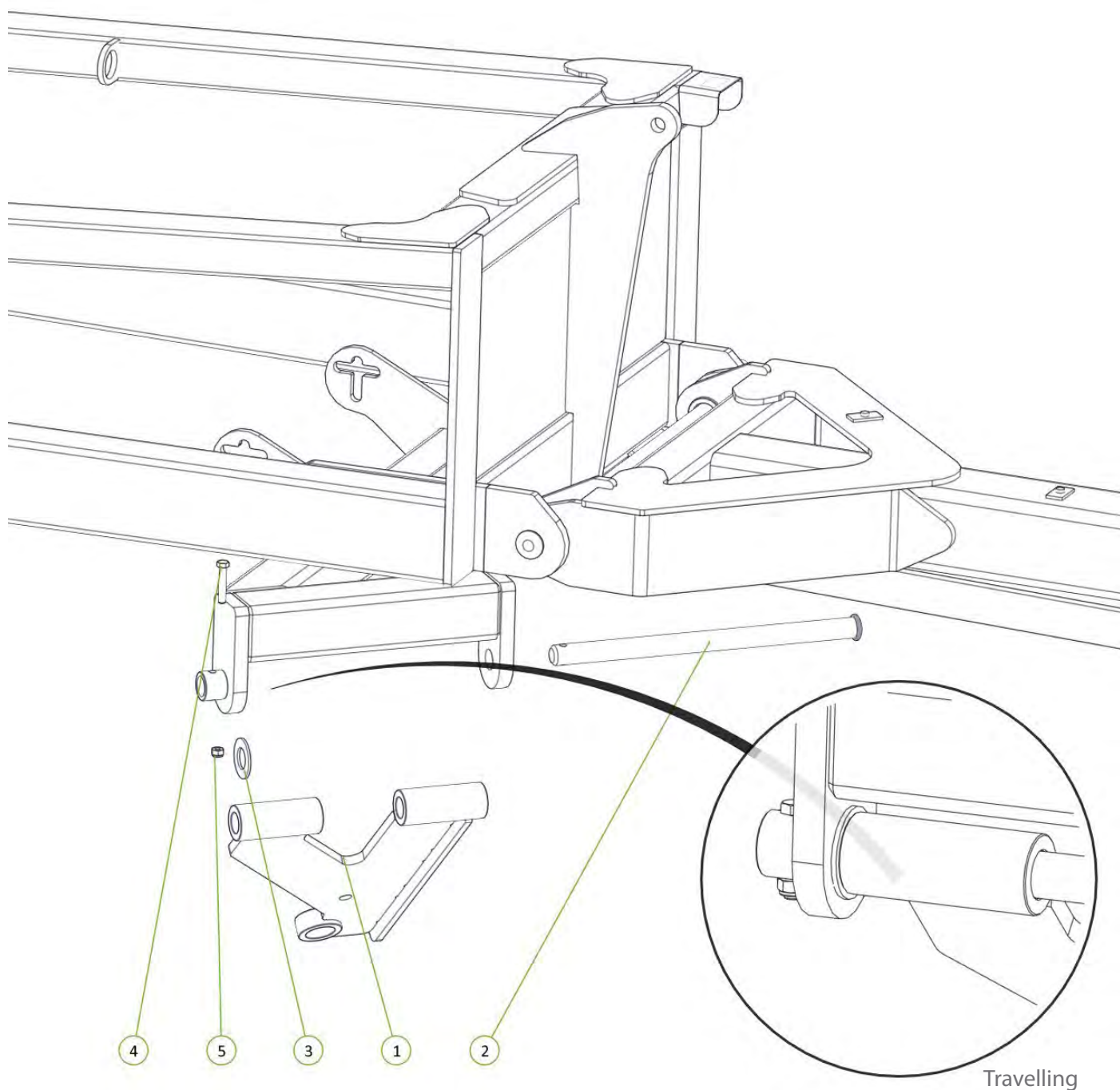
Item No.	Description	Qty	Number
1	M20 x 170 grade 8.8 ZP Bolt	1	0211-20170
2	Nyloc Nut M20	1	0221-NYL20
3	2.75"R C/W 6 tonne 8 on 8" PCD	1	0733-SH27596880
4	400/60-22.5Tyre on 8 on 275 PCD Rim	1	0751-400-60-22.5TR



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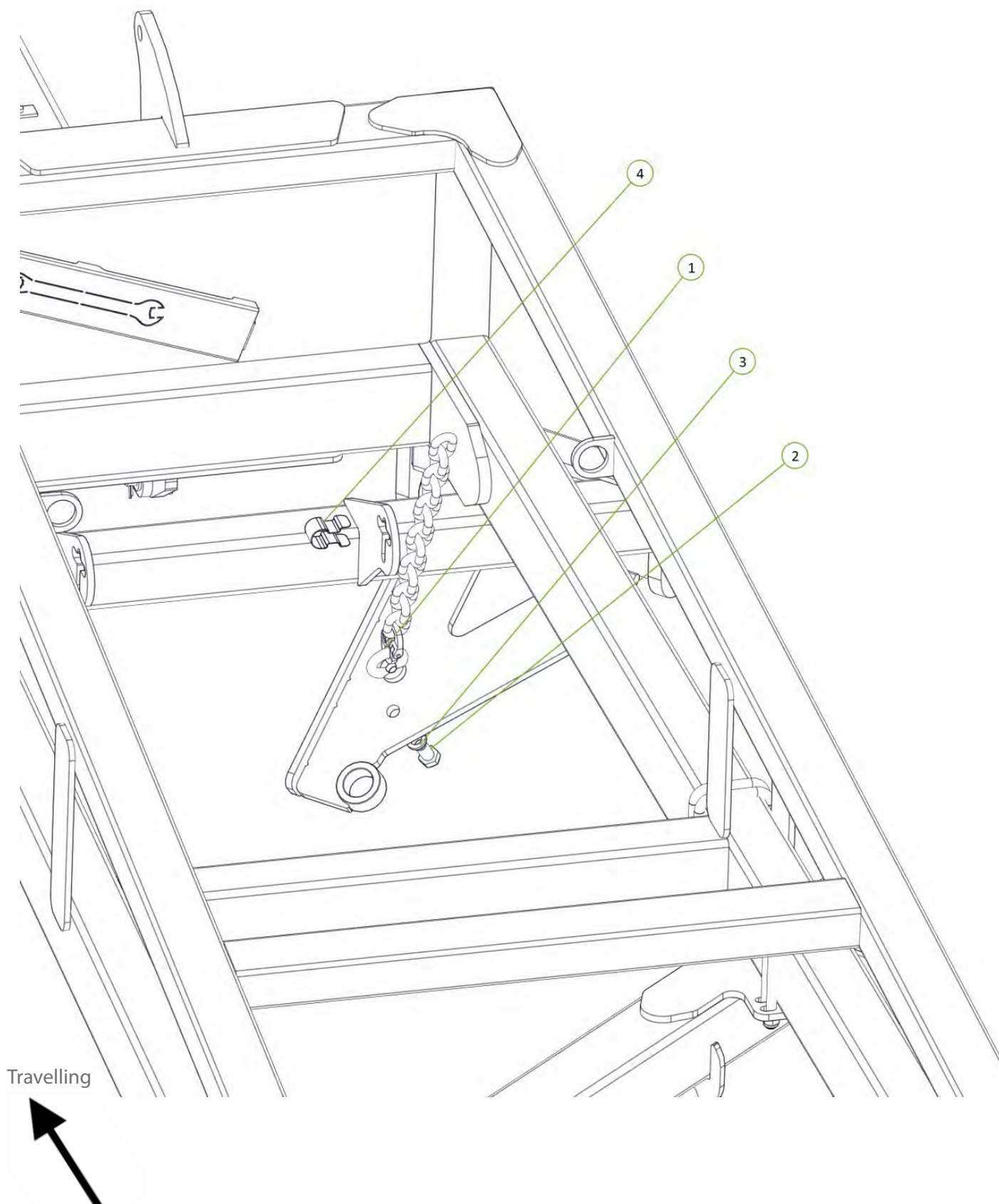
Item No.	Description	Qty	Number
1	Standard Chain Mt Plate	1	1510-21
2	Chain Mount Pivot Pin	1	0801-10-51
3	Washer High Tensile 1 3/8"	1	0232-HT13-8
4	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
5	Nyloc Nut M12	1	0221-NYL12

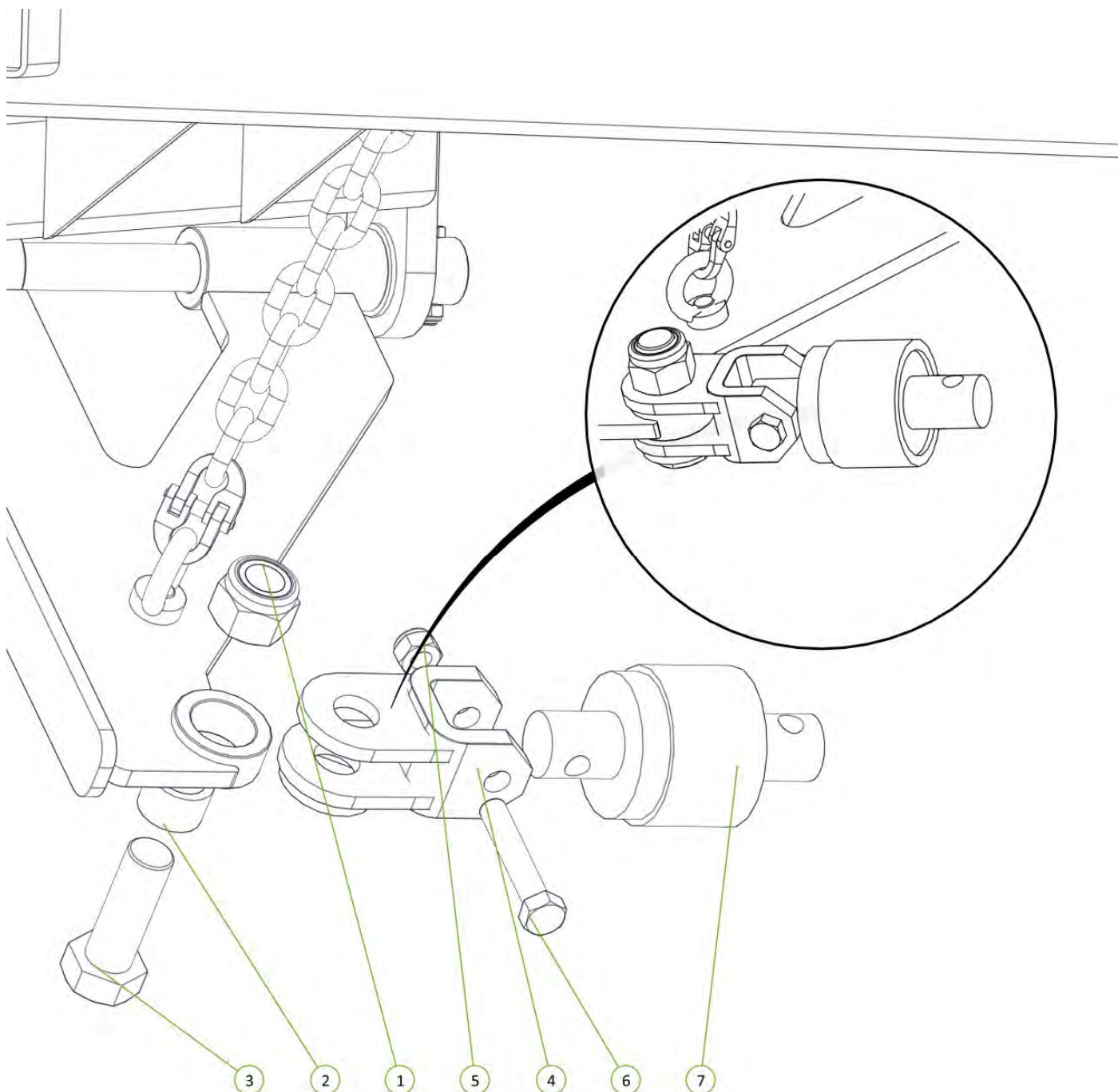


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Item No.	Description	Qty	Number
1	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA
2	M20 x 50 grade 8.8 ZP Bolt	1	0211-2040
3	M20 Spring Washer	1	0231-S20
4	Height Adjustor Retaining Clip	1	0801-KE014



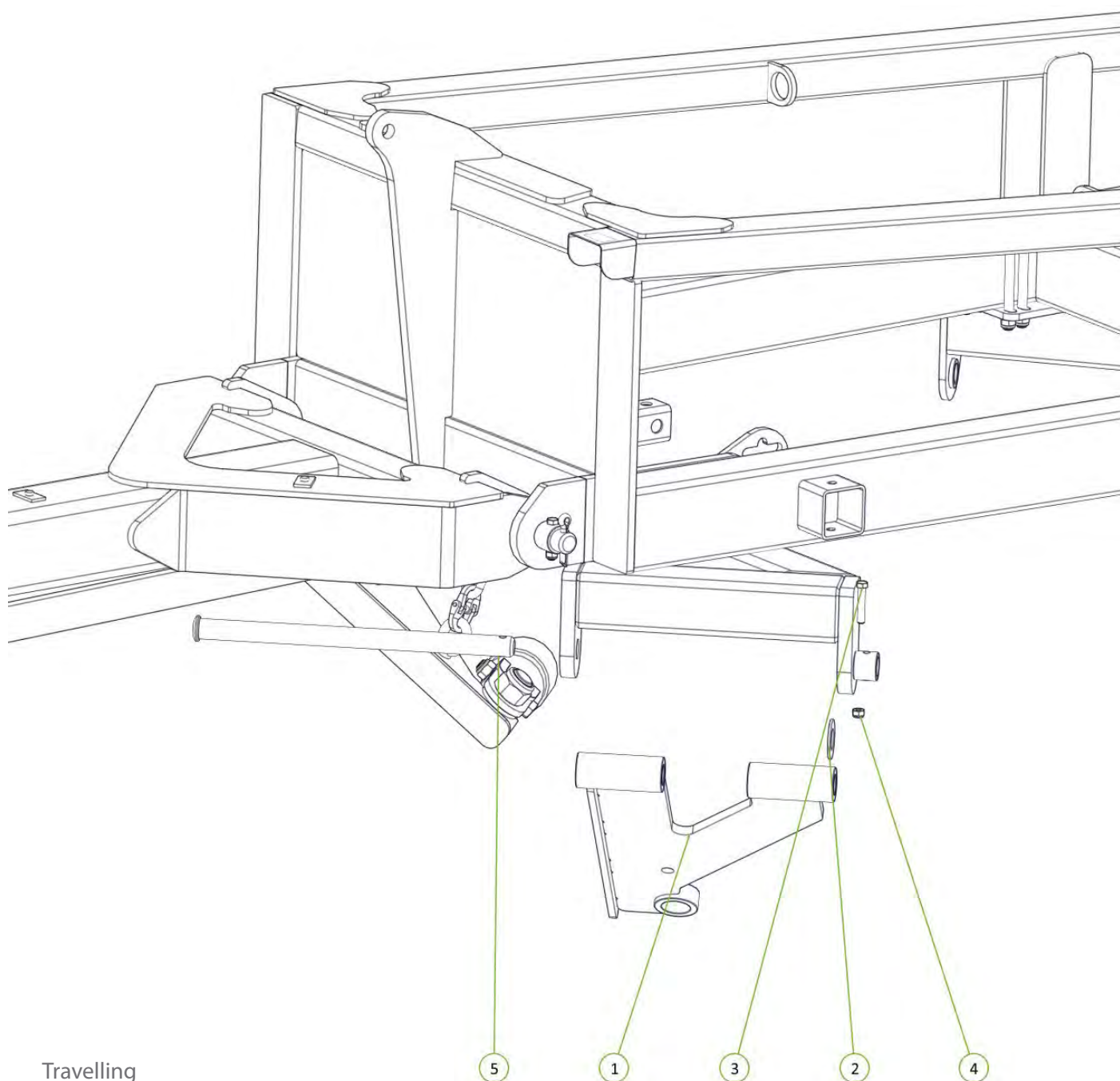


Item No.	Description	Qty	Number
1	Nyloc Nut M36	1	0221-NYL36
2	Wear Bush	1	0801-SSB
3	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
4	21mm Bolt on Clevis	1	0810-KE53
5	Nyloc Nut M20	1	0221-NYL20
6	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110 ST
7	20mm Bolt Swivel Unit	1	0802-PCHB55

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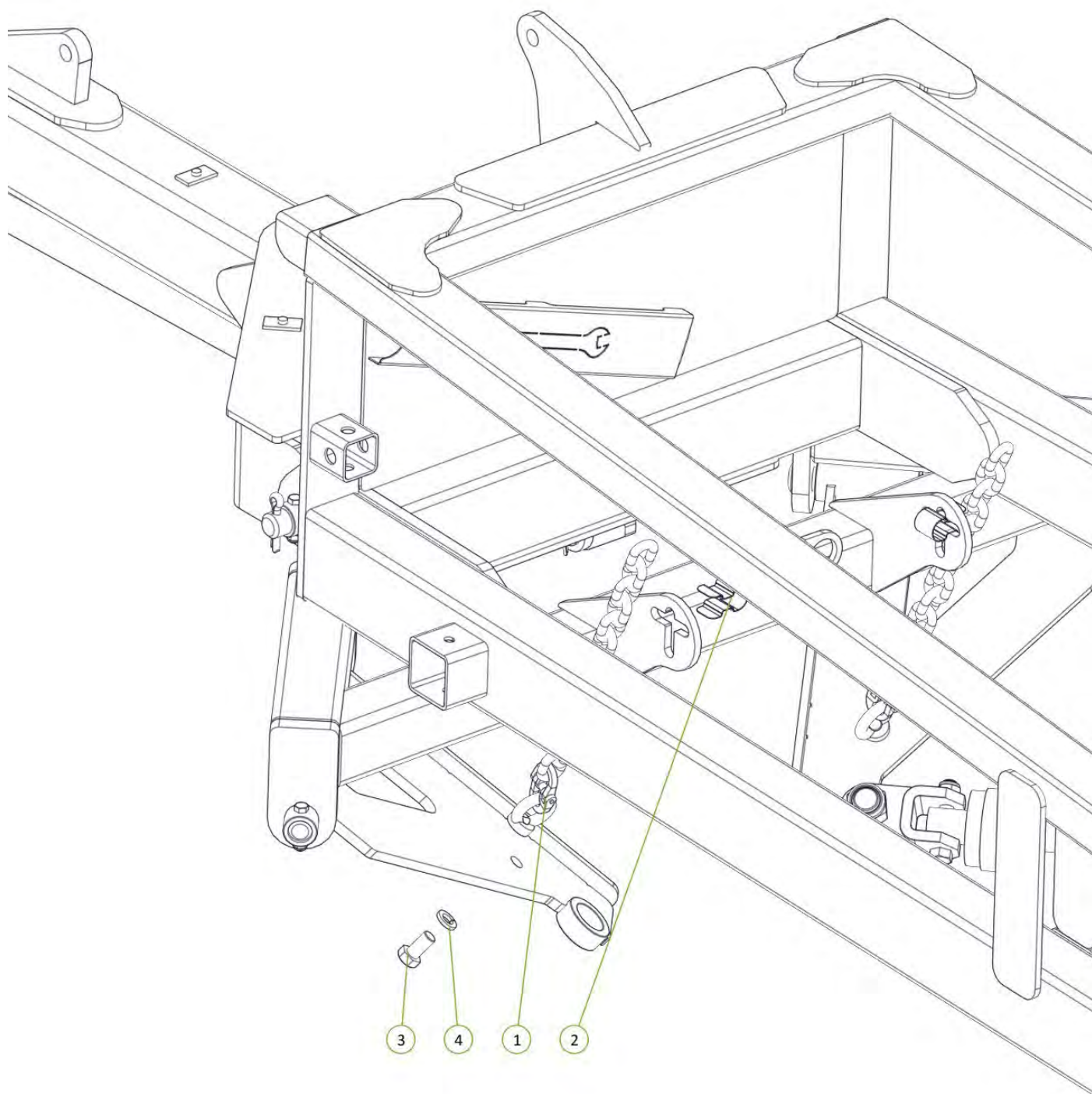
Item No.	Description	Qty	Number
1	Standard Chain Mt Plate	1	1510-21
2	Washer High Tensile 1 3/8"	1	0232-HT13-8
3	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
4	Nyloc Nut M12	1	0221-NYL12
5	Chain Mount Pivot Pin	1	0801-10-51



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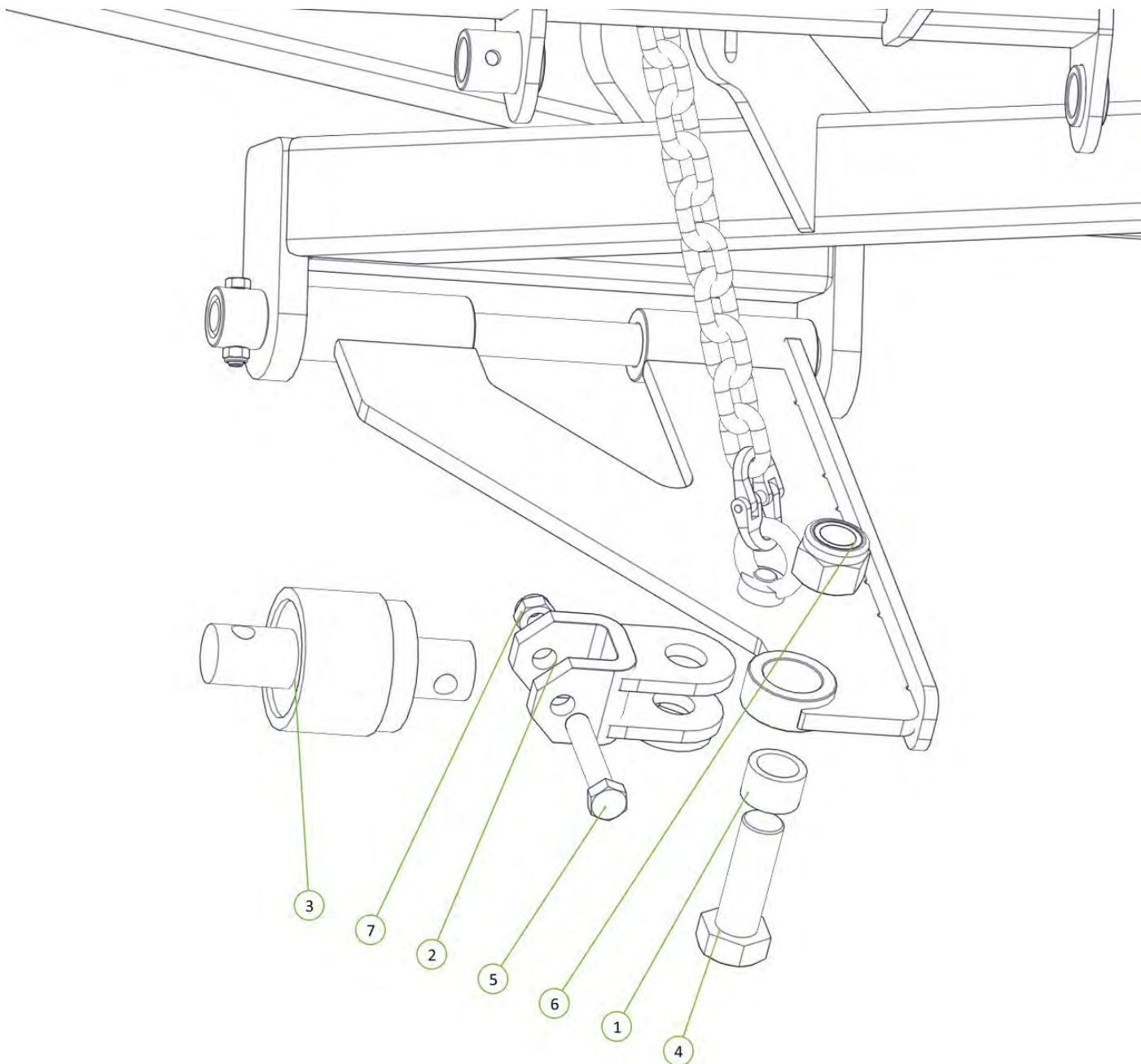


Item No.	Description	Qty	Number
1	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA
2	Height Adjustor Retaining Clip	1	0801-KE014
3	M20 x 40 grade 8.8 ZP Bolt	1	0211-2040
4	M20 Spring Washer	1	0231-S20



Travelling



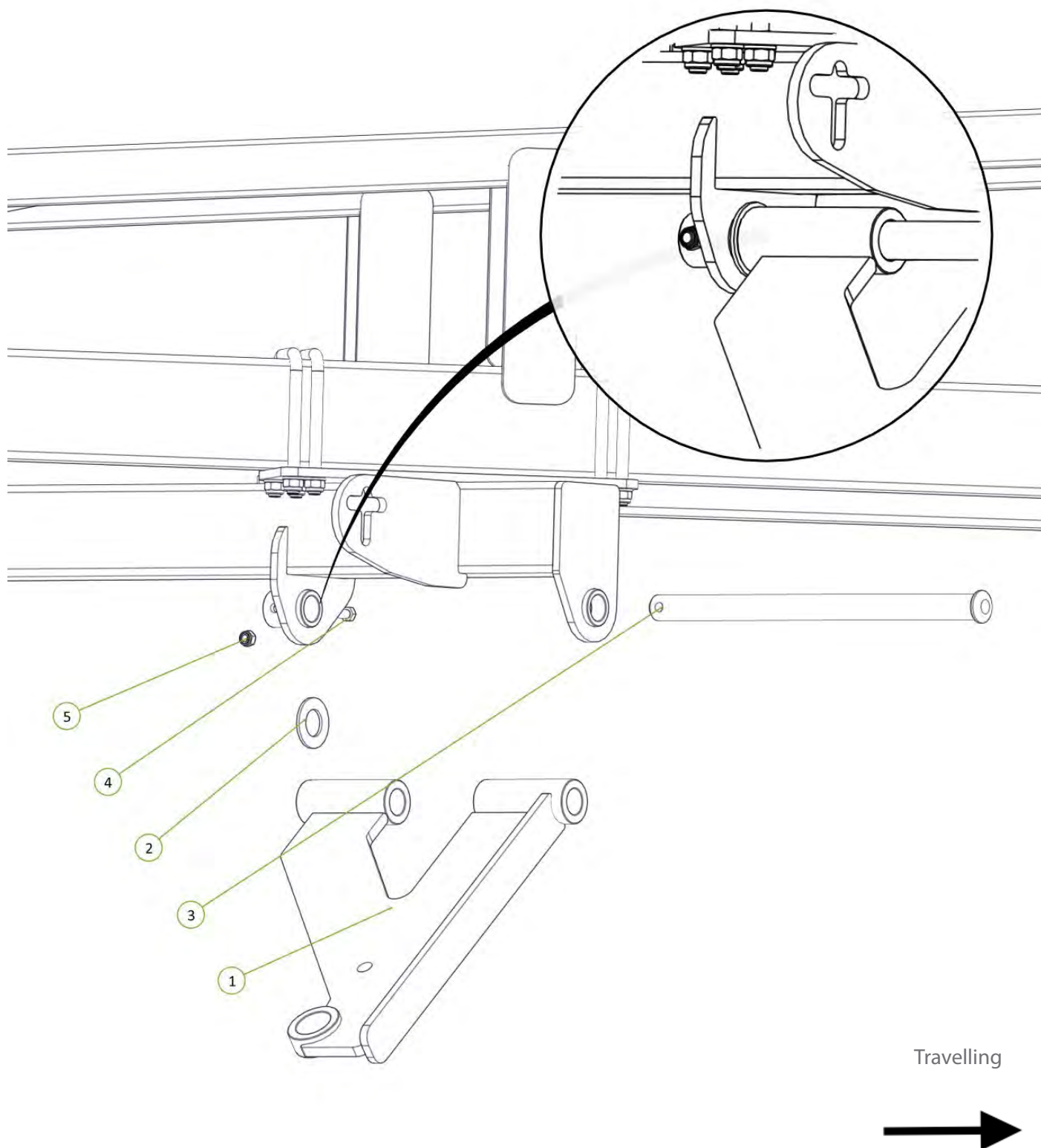


Item No.	Description	Qty	Number
1	Wear Bush	1	0801-SSB
2	21mm Bolt on Clevis	1	0810-KE53
3	20mm Bolt Swivel Unit	1	0802-PCHB55
4	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
5	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110 ST
6	Nyloc Nut M36	1	0221-NYL36
7	Nyloc Nut M20	1	0221-NYL20

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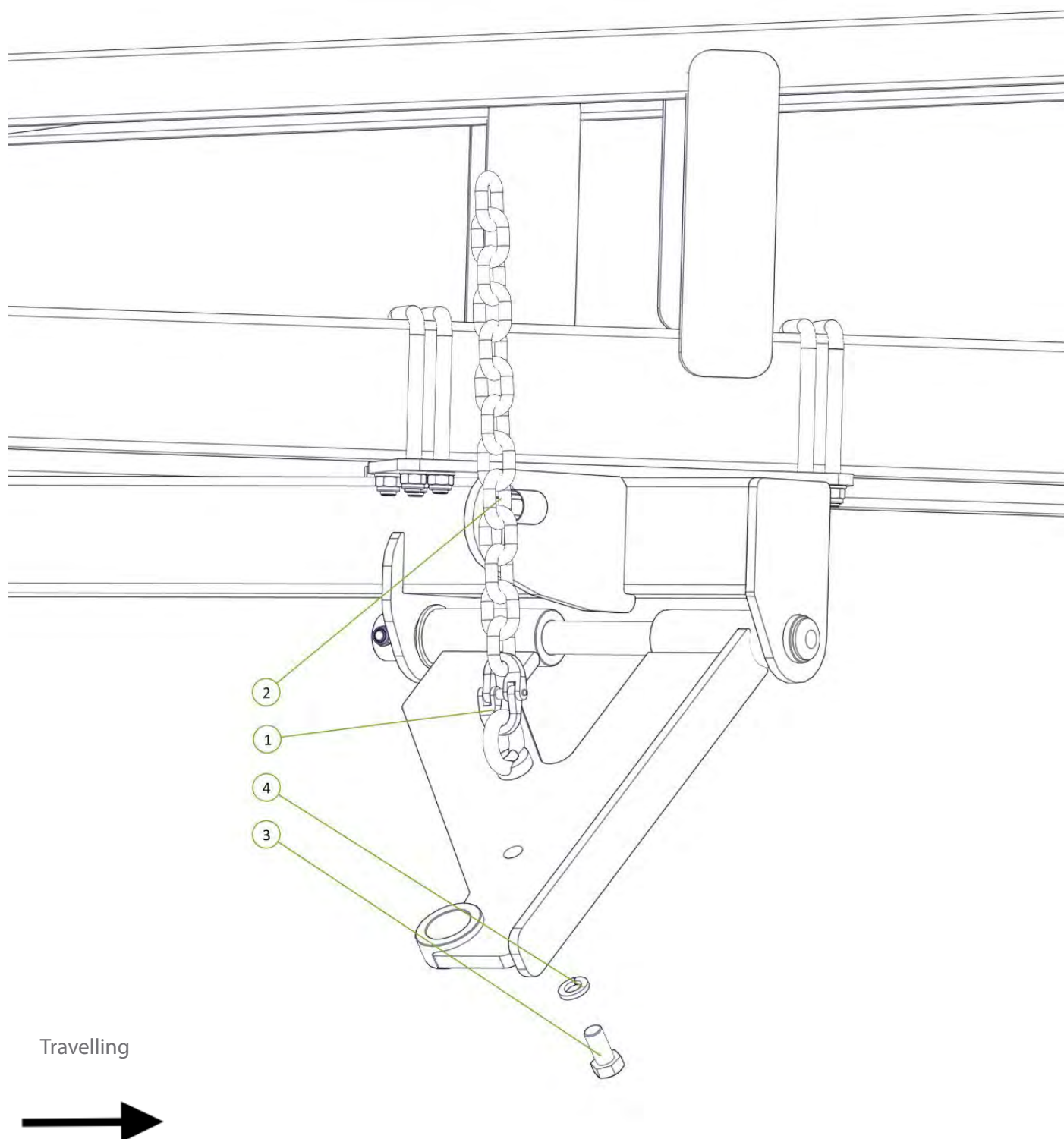
Item No.	Description	Qty	Number
1	Standard Chain Mt Plate	1	1510-21
2	Washer High Tensile 1 3/8"	1	0232-HT13-8
3	Chain Mount Pivot Pin	1	0801-10-51
4	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
5	Nyloc Nut M12	1	0221-NYL12



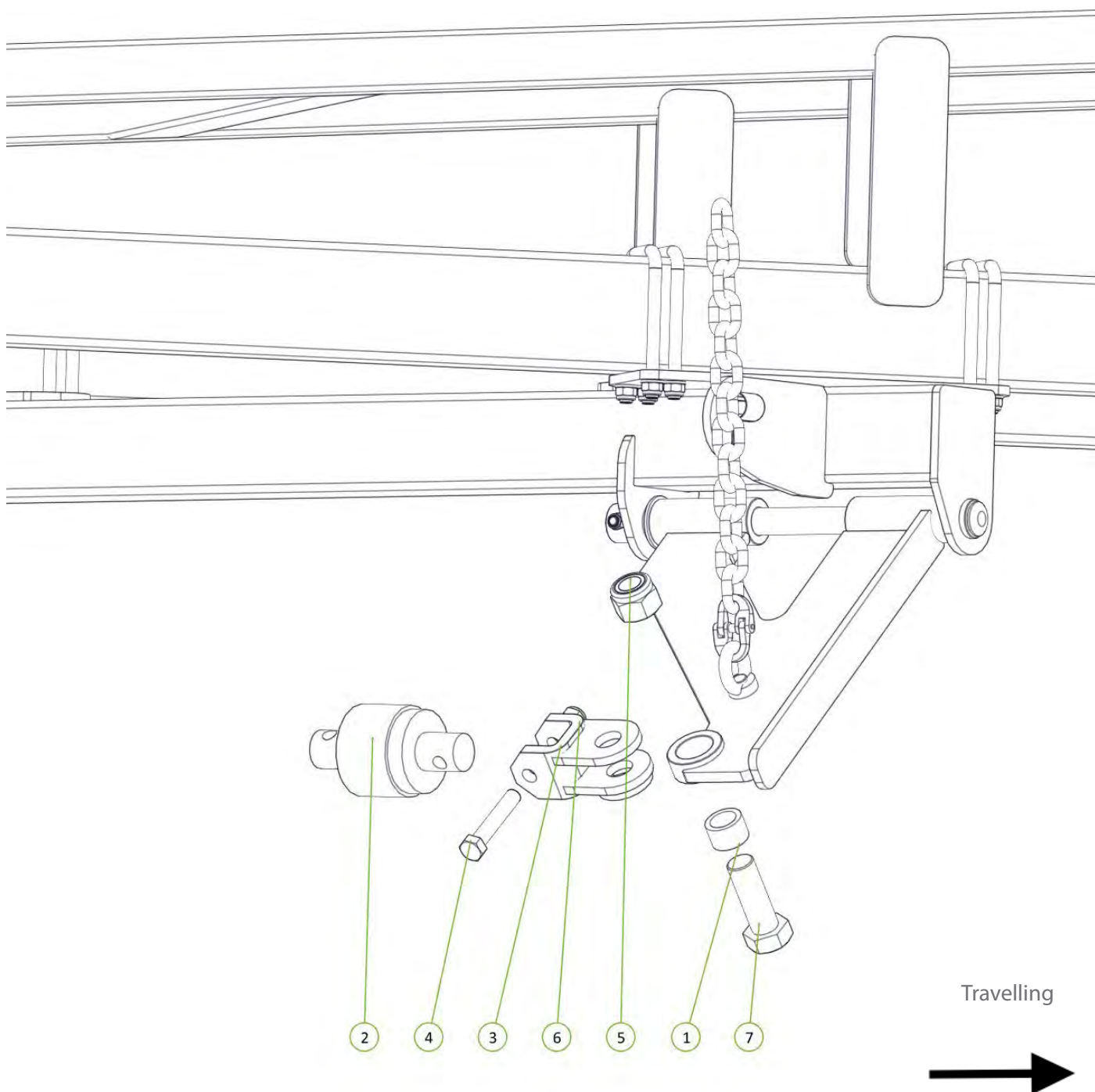
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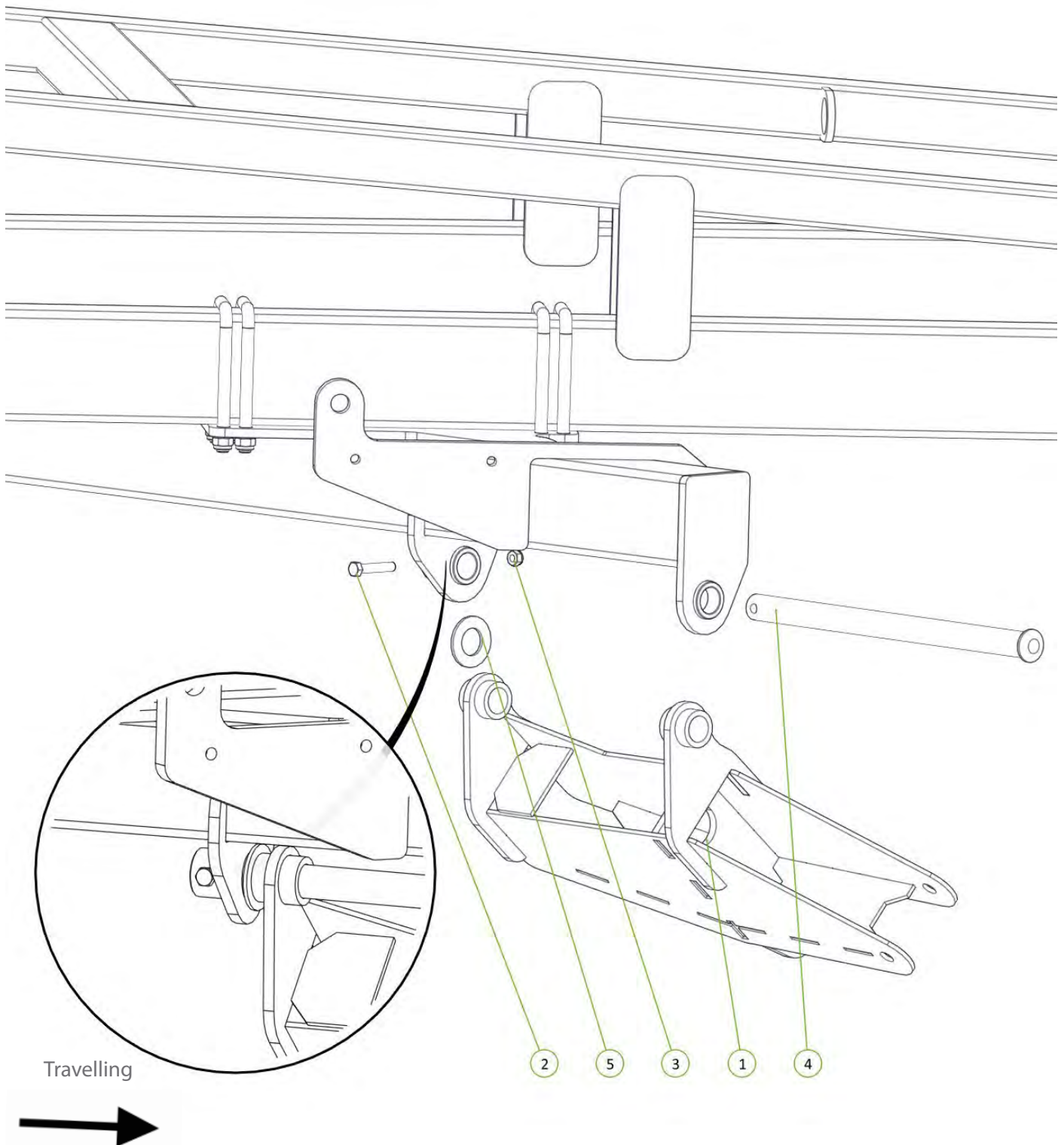
Item No.	Description	Qty	Number
1	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA
2	Height Adjustor Retaining Clip	1	0801-KE014
3	M20 x 40 grade 8.8 ZP Bolt	1	0211-2040
4	Washer Spring M20	1	1530-100



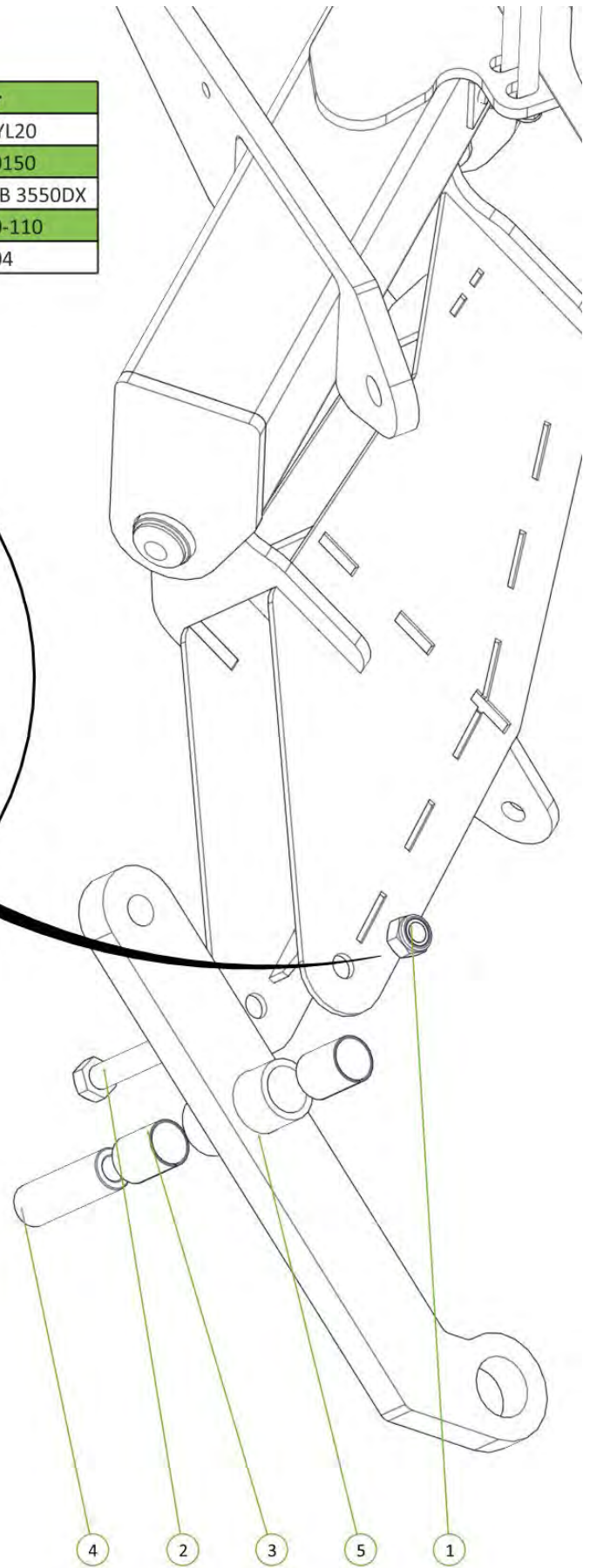
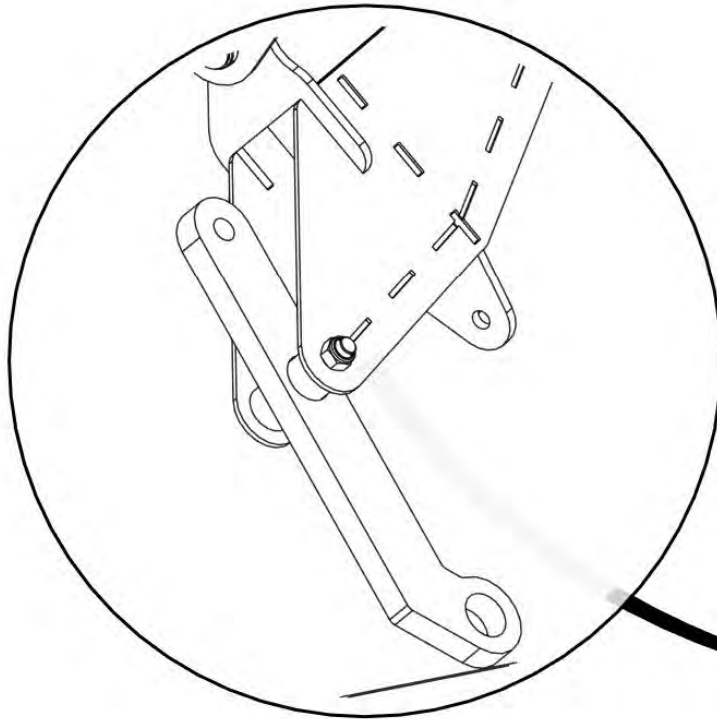
Item No.	Description	Qty	Number
1	Wear Bush	1	0801-SSB
2	20mm Bolt Swivel Unit	1	0802-PCHB55
3	21mm Bolt on Clevis	1	0810-KE53
4	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
5	Nyloc Nut M36	1	0221-NYL36
6	Nyloc Nut M20	1	0221-NYL20
7	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105



Item No.	Description	Qty	Number
1	Front Module Tension body	1	0810-103F
2	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
3	Nyloc Nut M12	1	0221-NYL12
4	Chain Mount Pivot Pin	1	0801-10-51
5	Washer High Tensile 1 3/8"	1	0232-HT13-8



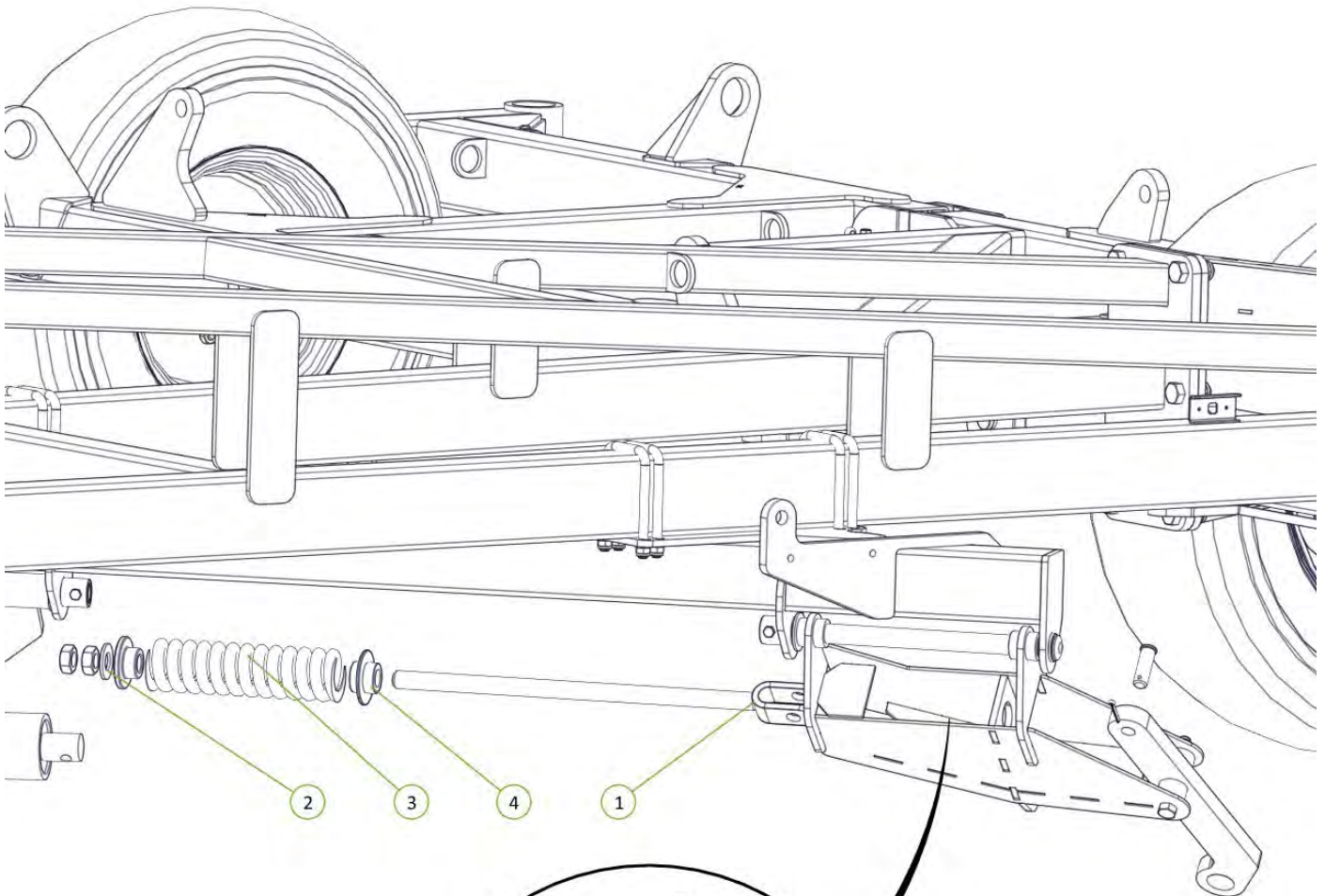
Item No.	Description	Qty	Number
1	Nyloc Nut M20	1	0221-NYL20
2	M20 x 150 grade 8.8 ZP Bolt	1	0211-20150
3	MB ID 35mm x 50mm DX Bush	2	0113-MB 3550DX
4	Module Pivot Arm Bush	1	0801-10-110
5	20mm Module Tension Arm	1	0810-104



Travelling

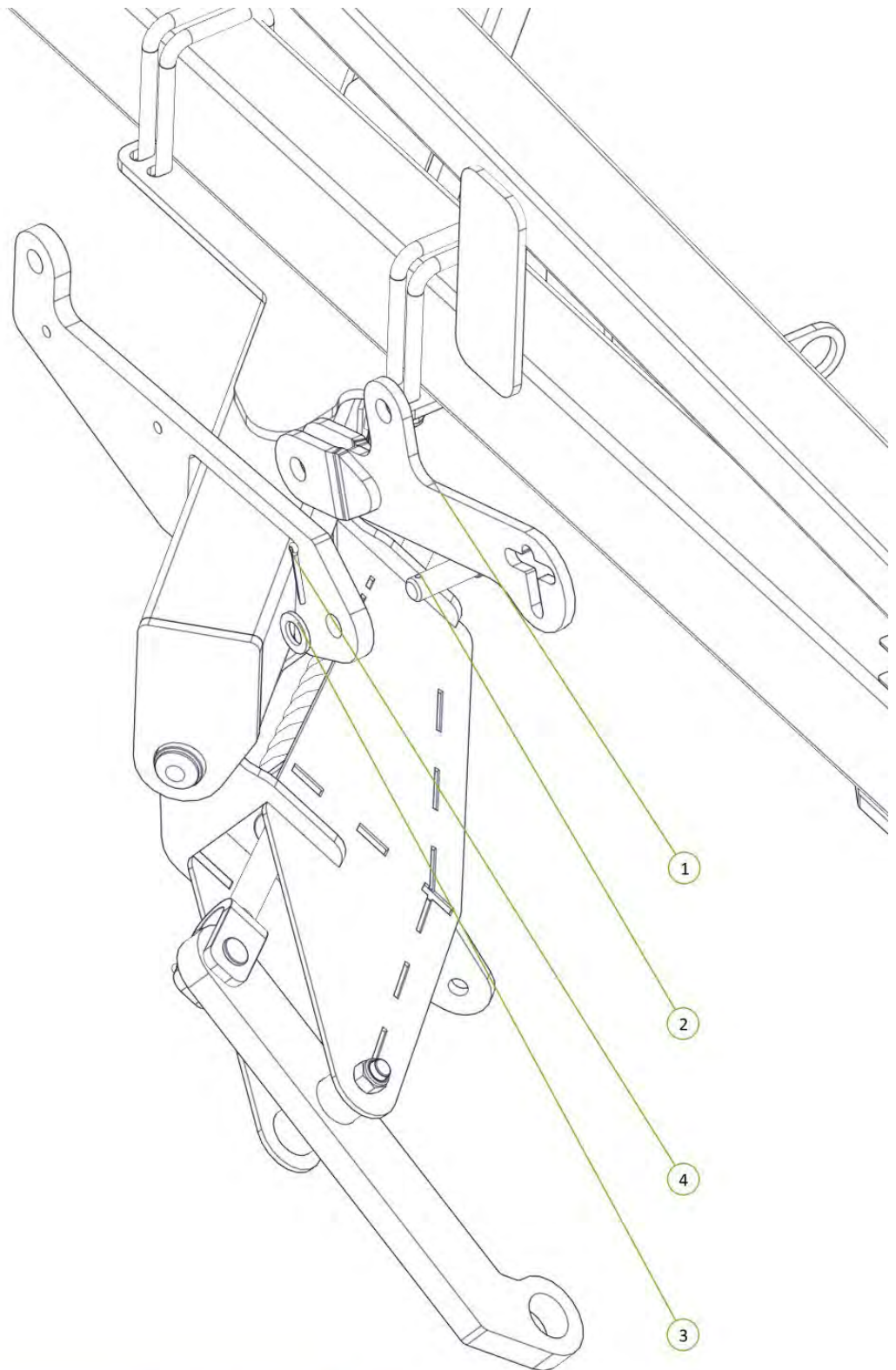


Item No.	Description	Qty	Number
1	Module Tension Rod Assembly	1	0810-105A
2	Washer High Tensile 1 1/4"	1	0232-HT11-4
3	20mm Compression Spring, Black	1	0801-XK9261S
4	Rigid Spring Locator	1	0801-10-S2L



Travelling



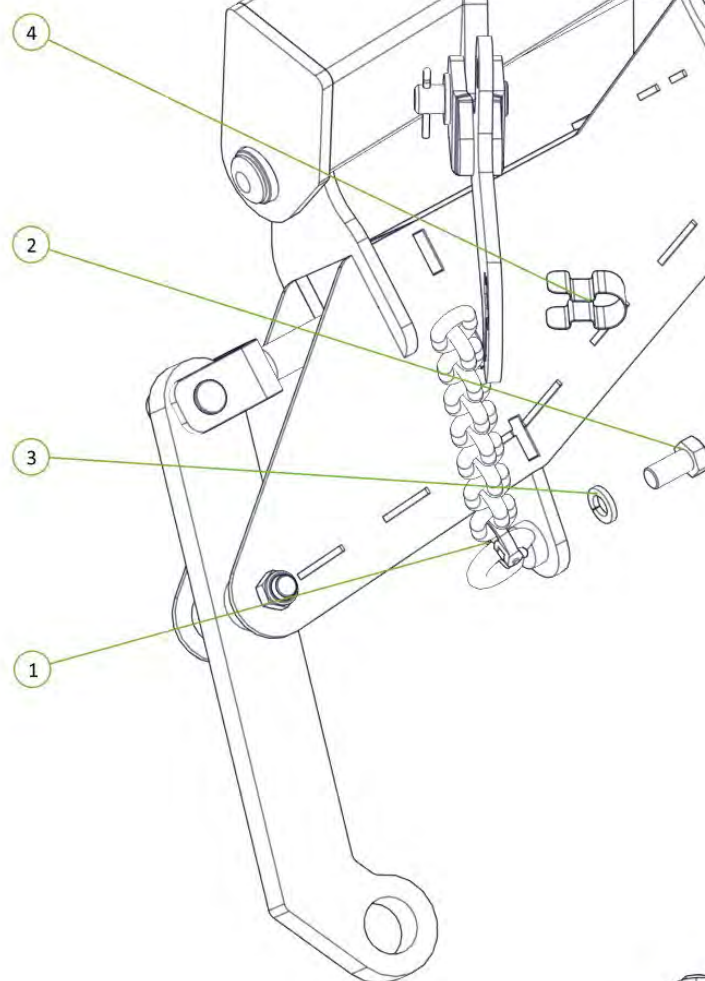


Item No.	Description	Qty	Number
1	30' Module Lift Plate	1	0810-106
2	Clevis Pin 25mm x 75mm	1	0801-KE0307-1
3	Washer Flat M24	1	0231-F24
4	M6 x 50 Cotter Pin	1	0261-PINC650

Travelling



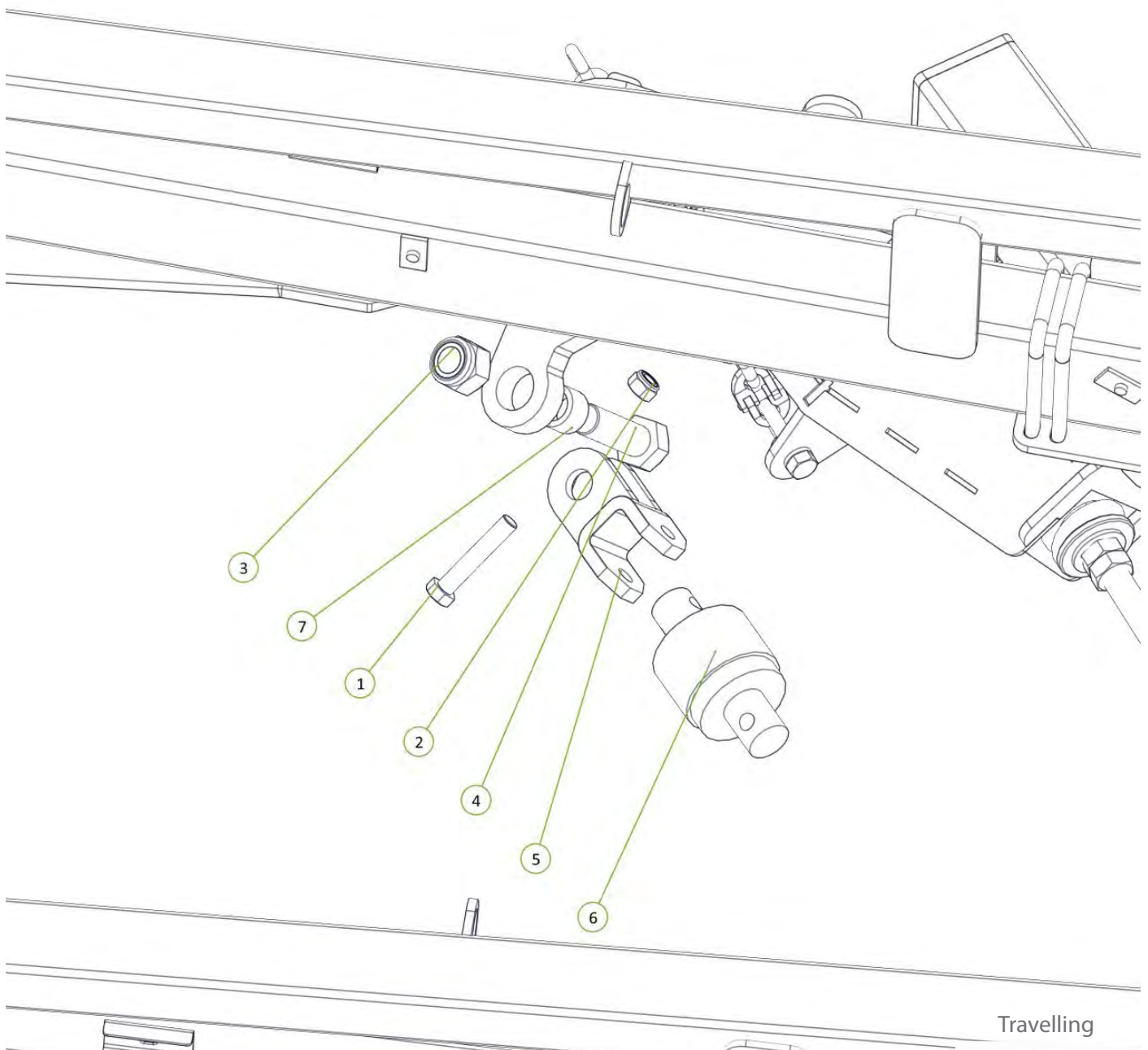
Item No.	Description	Qty	Number
1	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA
2	M20 x 40 grade 8.8 ZP Bolt	1	0211-2040
3	Washer Spring M20	1	0231-S20
4	Height Adjustor Retaining Clip	1	0801-KE014



Travelling



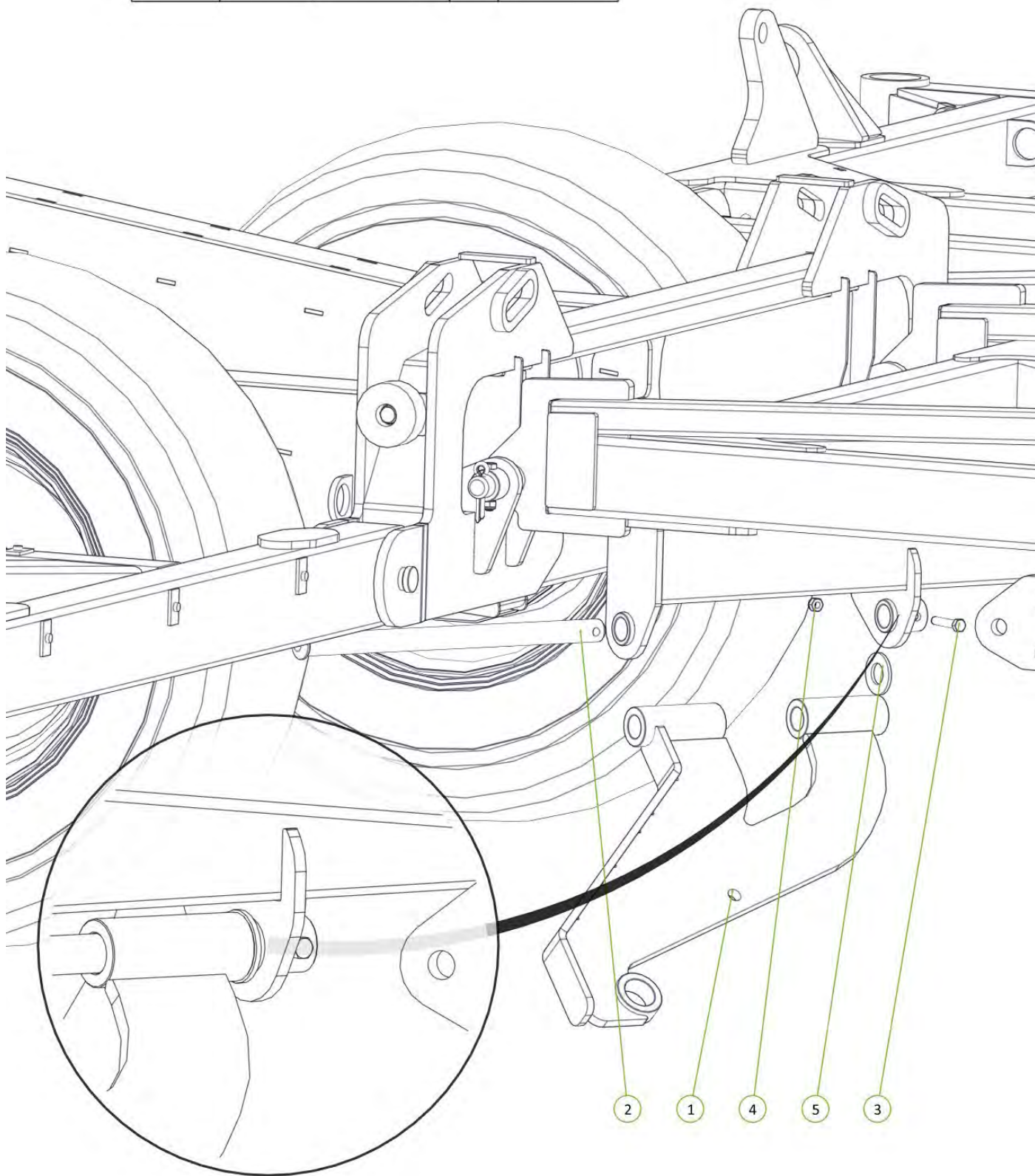
Item No.	Description	Qty	Number
1	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
2	Nyloc Nut M20	1	0221-NYL20
3	Nyloc Nut M36	1	0221-NYL36
4	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
5	21mm Bolt on Clevis	1	0801-KE53U
6	20mm Bolt Swivel Unit	1	0802-PCHB55
7	Wear Bush	1	0801-SSB



Travelling



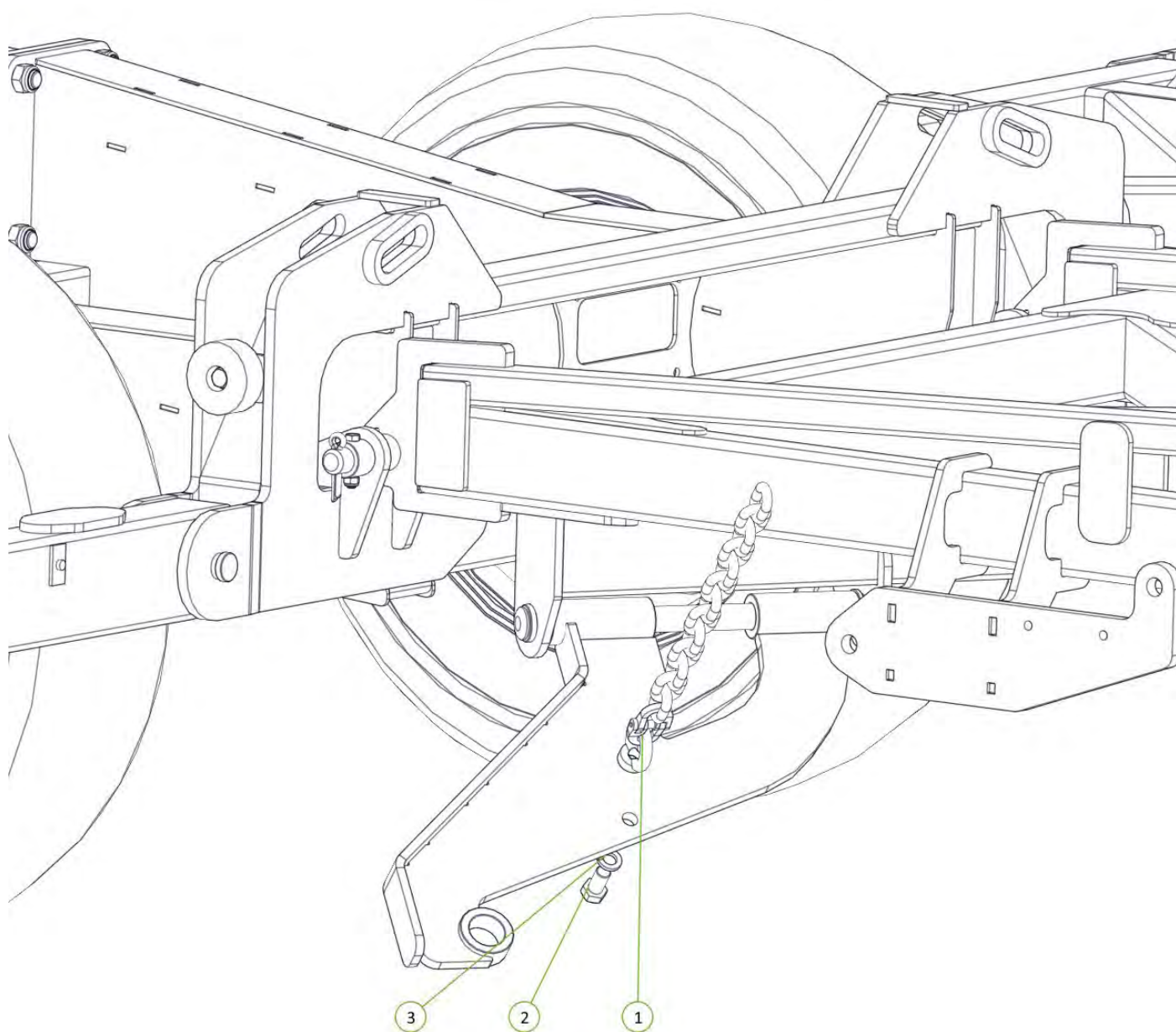
Item No.	Description	Qty	Number
1	Extended Chain Mt Plate	1	1510-22
2	Chain Mount Pivot Pin	1	0801-10-51
3	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
4	Nyloc Nut M12	1	0221-NYL12
5	Washer High Tensile 1 1/4"	1	0232-HT11-4



Travelling



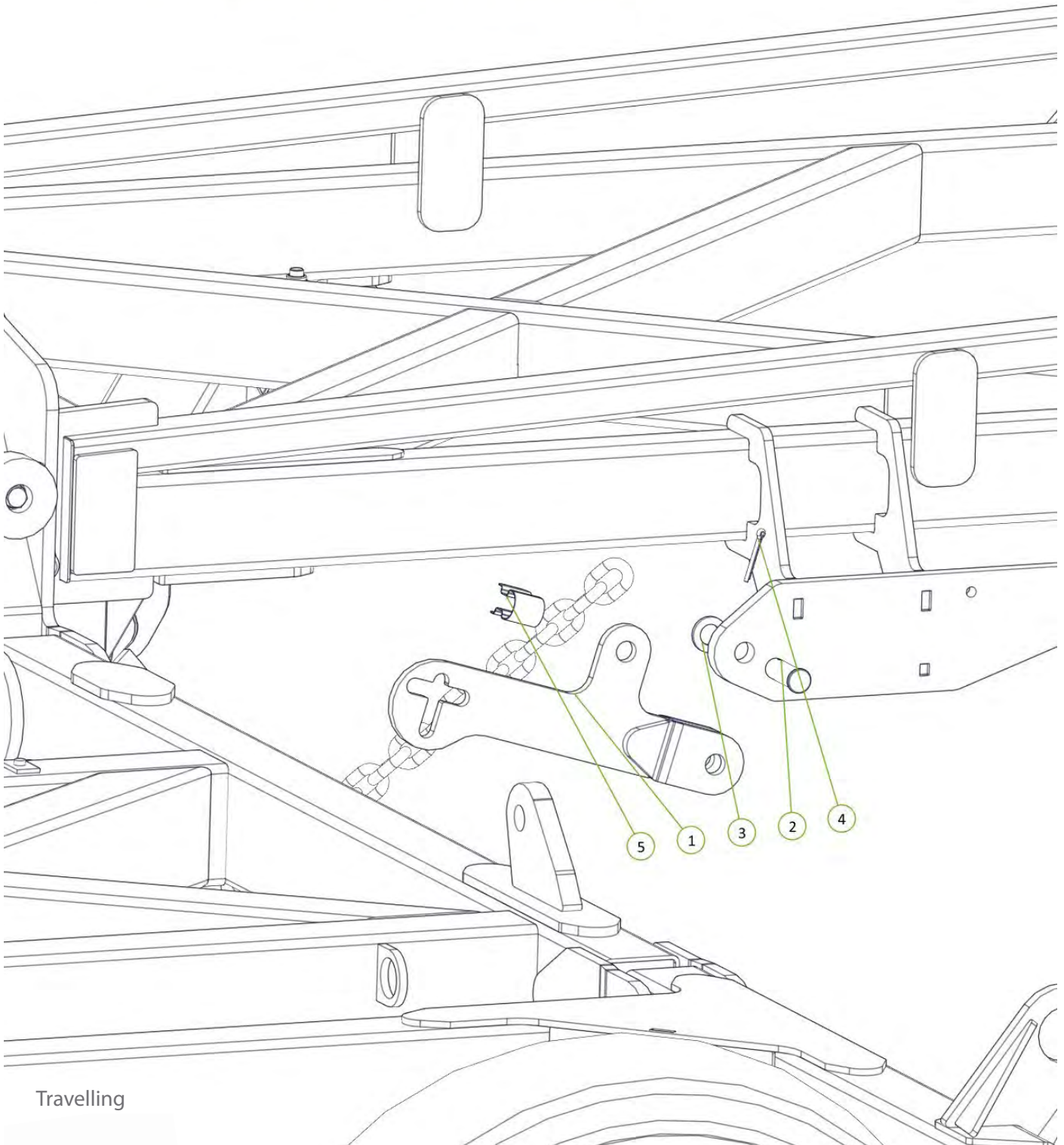
Item No.	Description	Qty	Number
1	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA
2	M20 x 50 grade 8.8 ZP Bolt	1	0211-2040
3	Washer Spring M20	1	0231-S20



Travelling



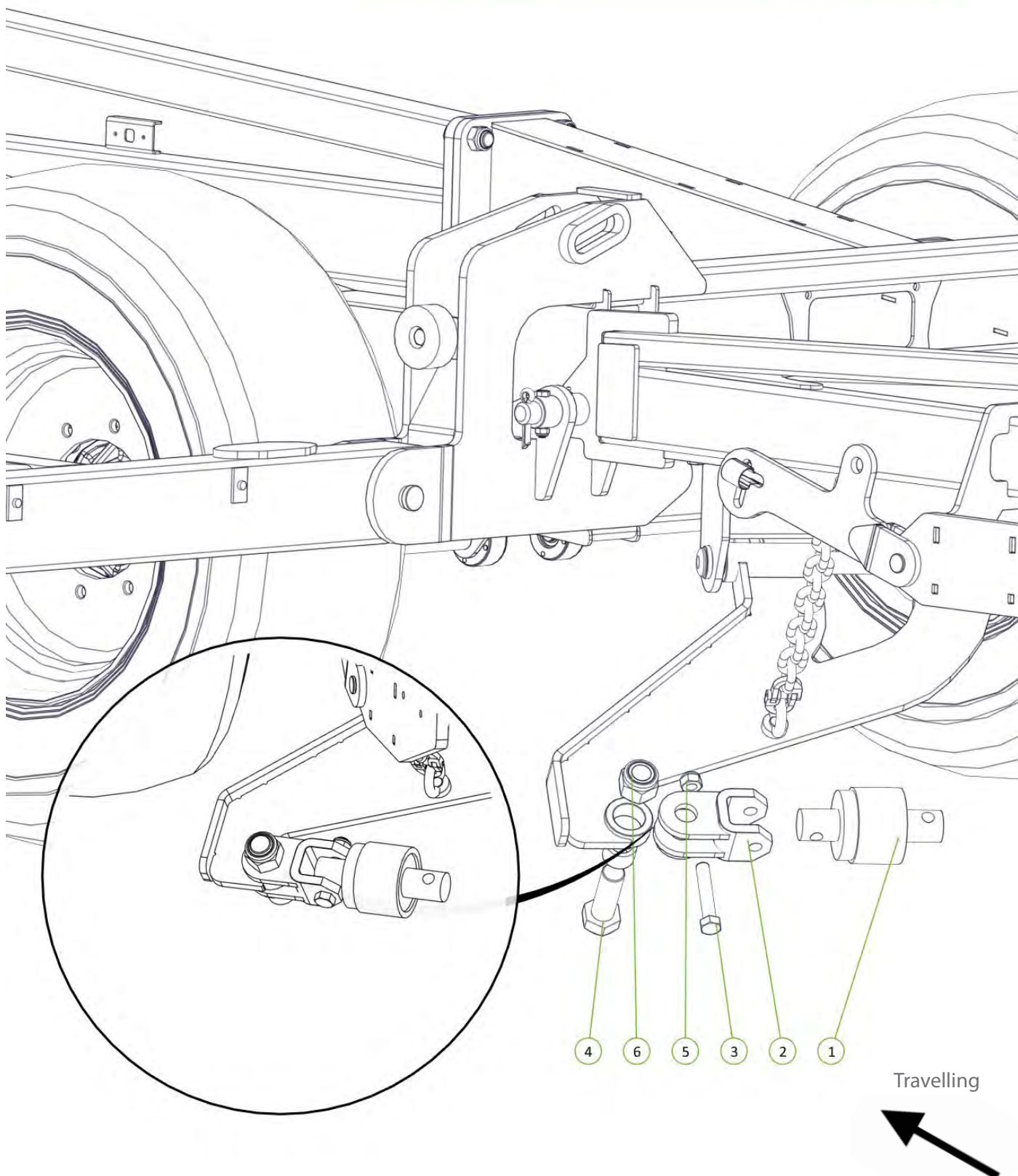
Item No.	Description	Qty	Number
1	30' Module Lift Plate	1	0810-106
2	Clevis Pin 25mm x 75mm	1	0801-KE0307-1
3	Washer Flat M24	1	0231-F24
4	M6 x 50 Cotter Pin	1	0261-PINC650
5	Height Adjustor Retaining Clip	1	0801-KE014



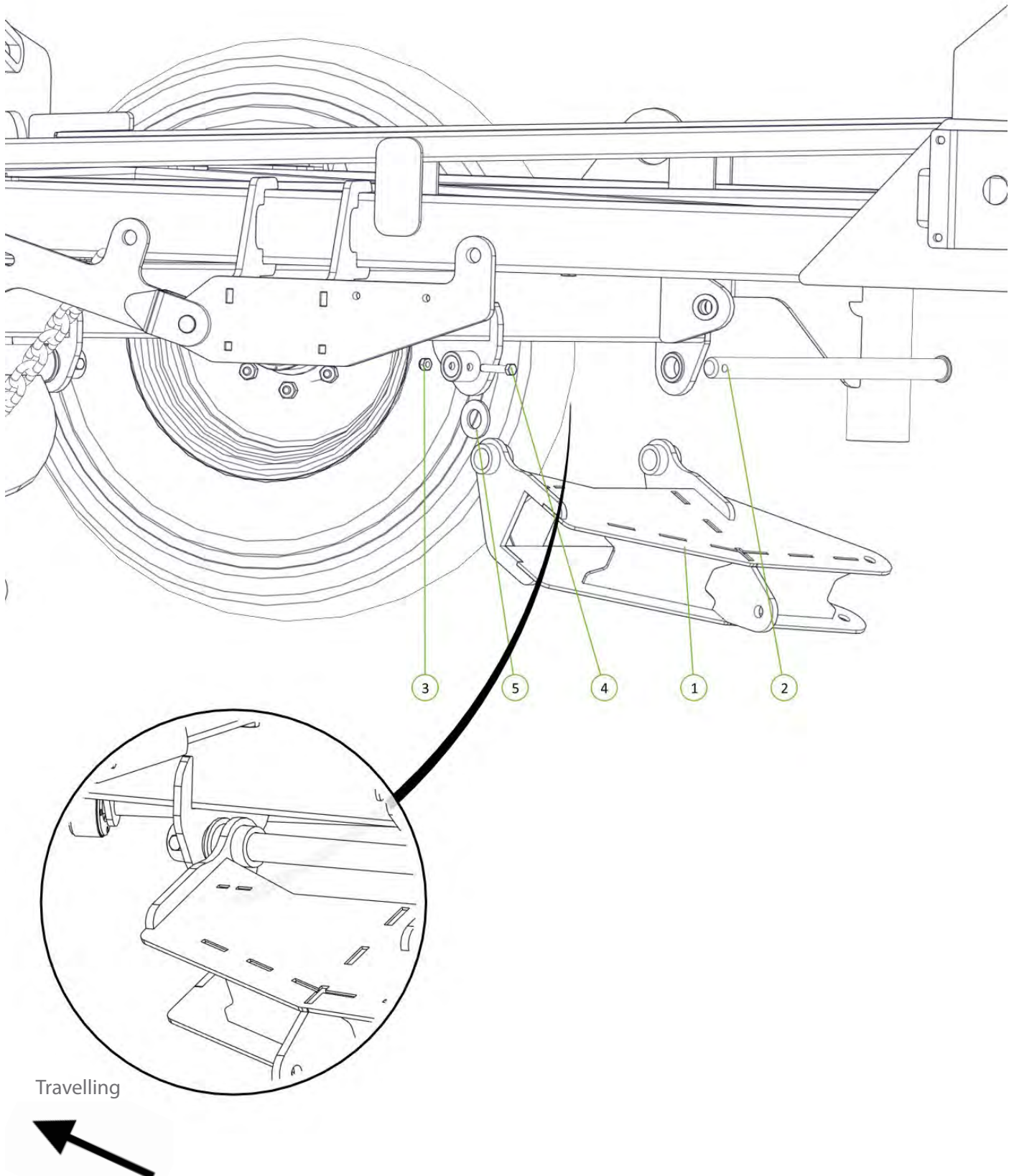
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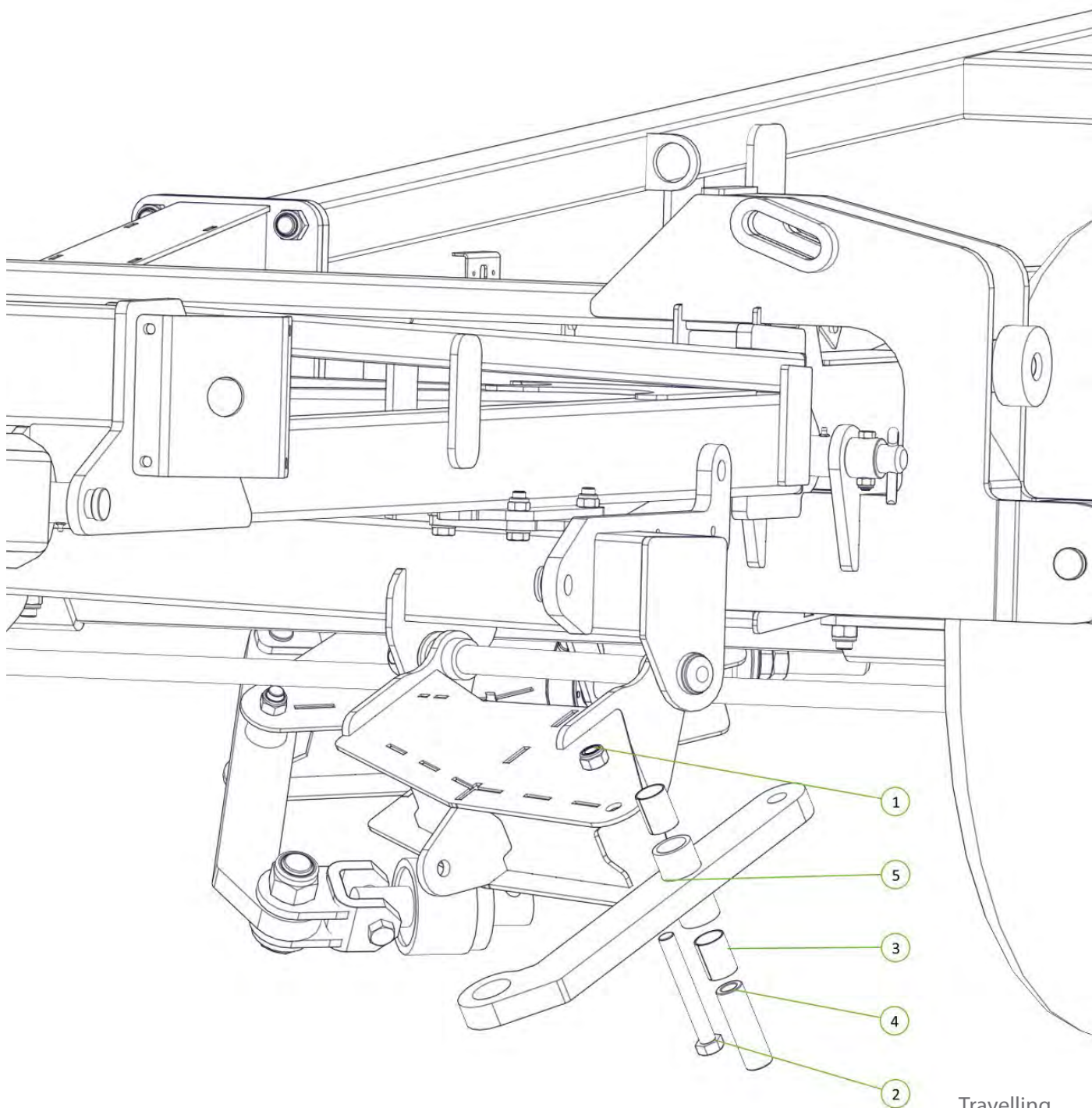
Item No.	Description	Qty	Number
1	20mm Bolt Swivel Unit	1	0802-PCHB55
2	21mm Bolt on Clevis	1	0810-KE53
3	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
4	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
5	Nyloc Nut M20	1	0221-NYL20
6	Nyloc Nut M36	1	0221-NYL36



Item No.	Description	Qty	Number
1	Rear Module Tension Body	1	0810-103R
2	Chain Mount Pivot Pin	1	0801-10-51
3	Nyloc Nut M12	1	0221-NYL12
4	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
5	Washer High Tensile 1 1/4"	1	0232-HT11-4

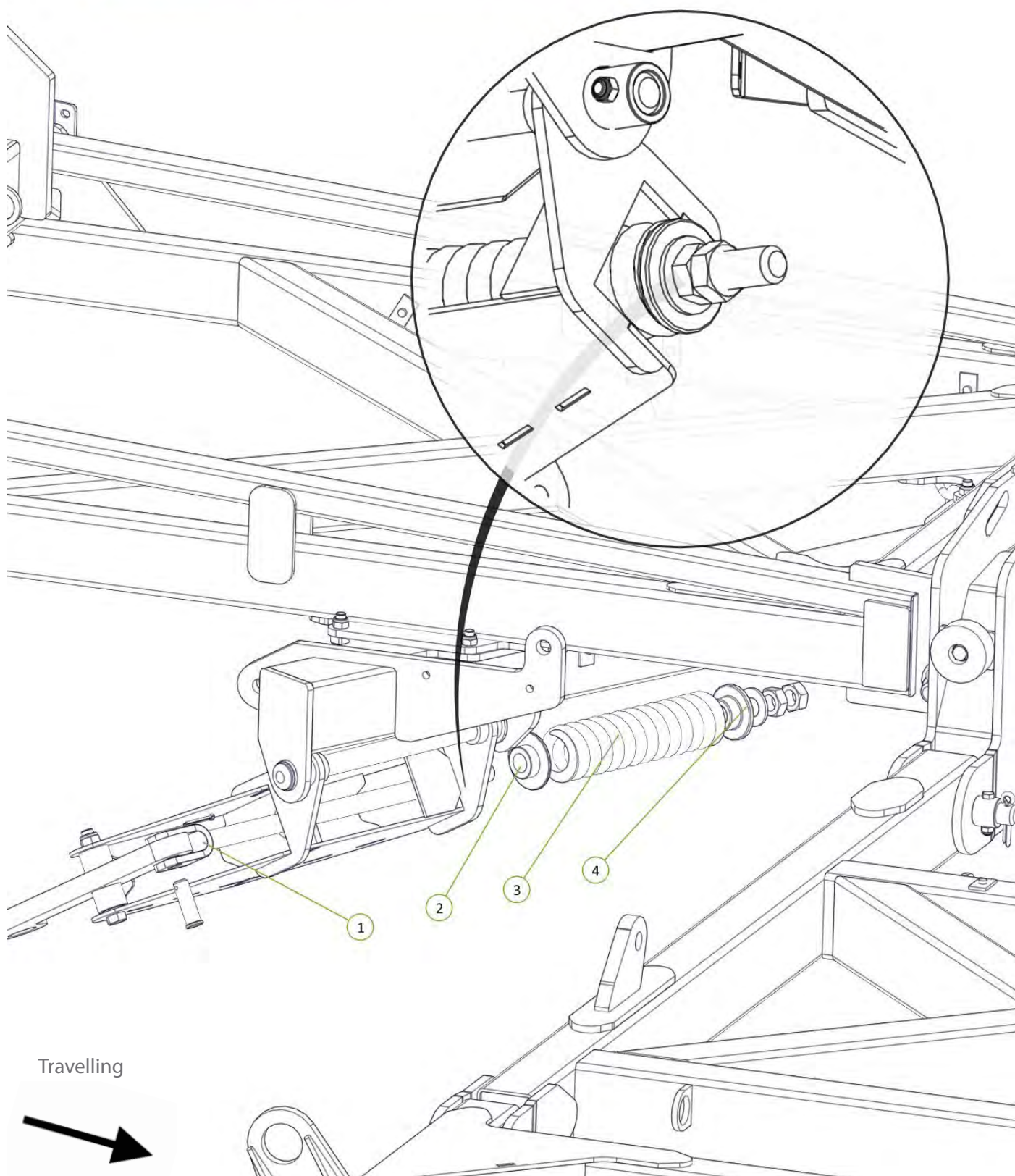


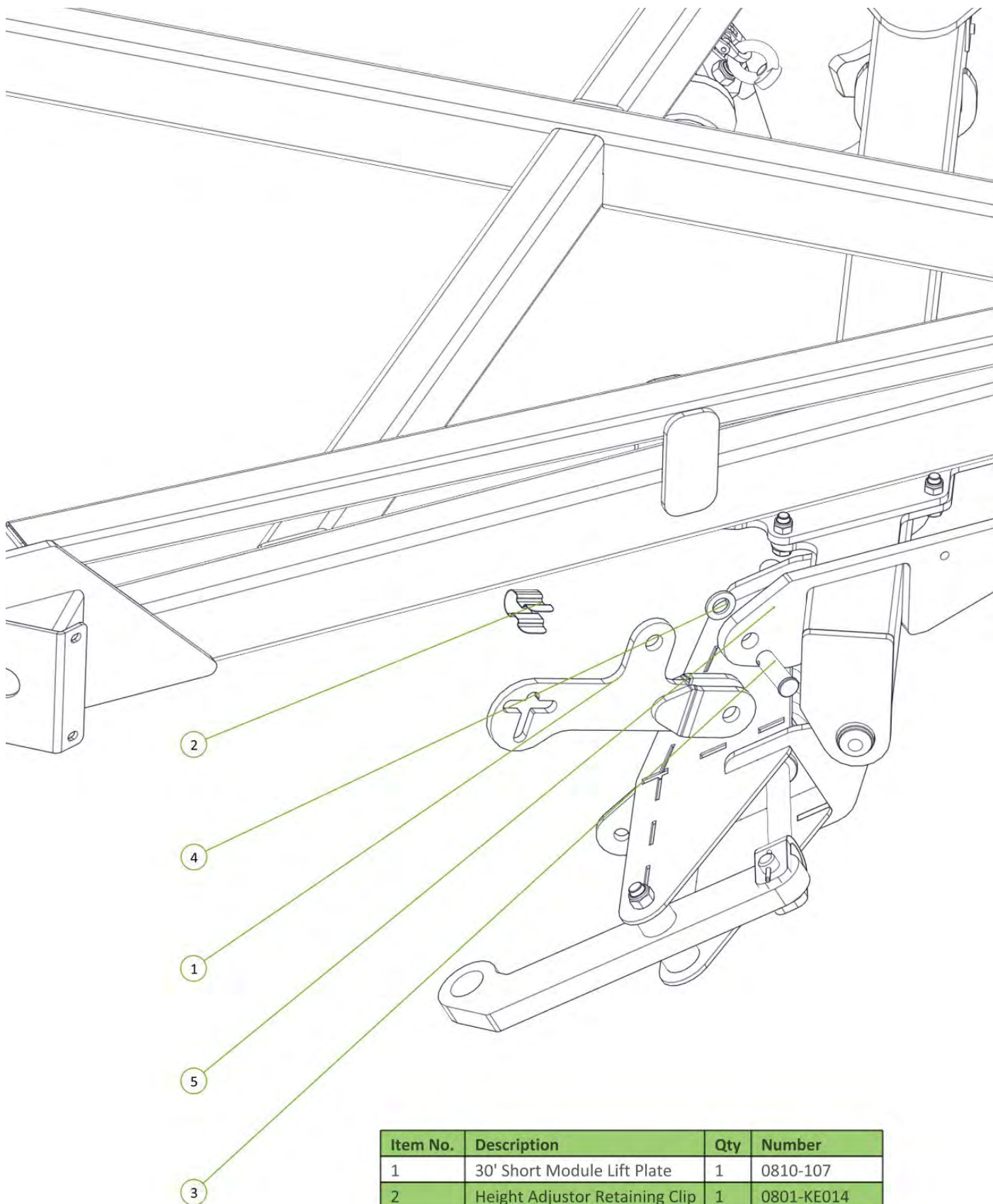
Item No.	Description	Qty	Number
1	Nyloc Nut M20	1	0221-NYL20
2	M20 x 150 grade 8.8 ZP Bolt	1	0211-20150
3	MB ID 35mm x 50mm DX Bush	2	0113-MB 3550DX
4	Module Pivot Arm Bush	1	0801-10-110
5	Module Tension Arm	1	0810-104



Travelling

Item No.	Description	Qty	Number
1	Module Tension Rod Assembly	1	0810-105A
2	Rigid Spring Locator	1	0801-10-S2L
3	20mm Compression Spring, Black	1	0801-XK9261S
4	Washer High Tensile 1 1/4"	1	0232-HT11-4



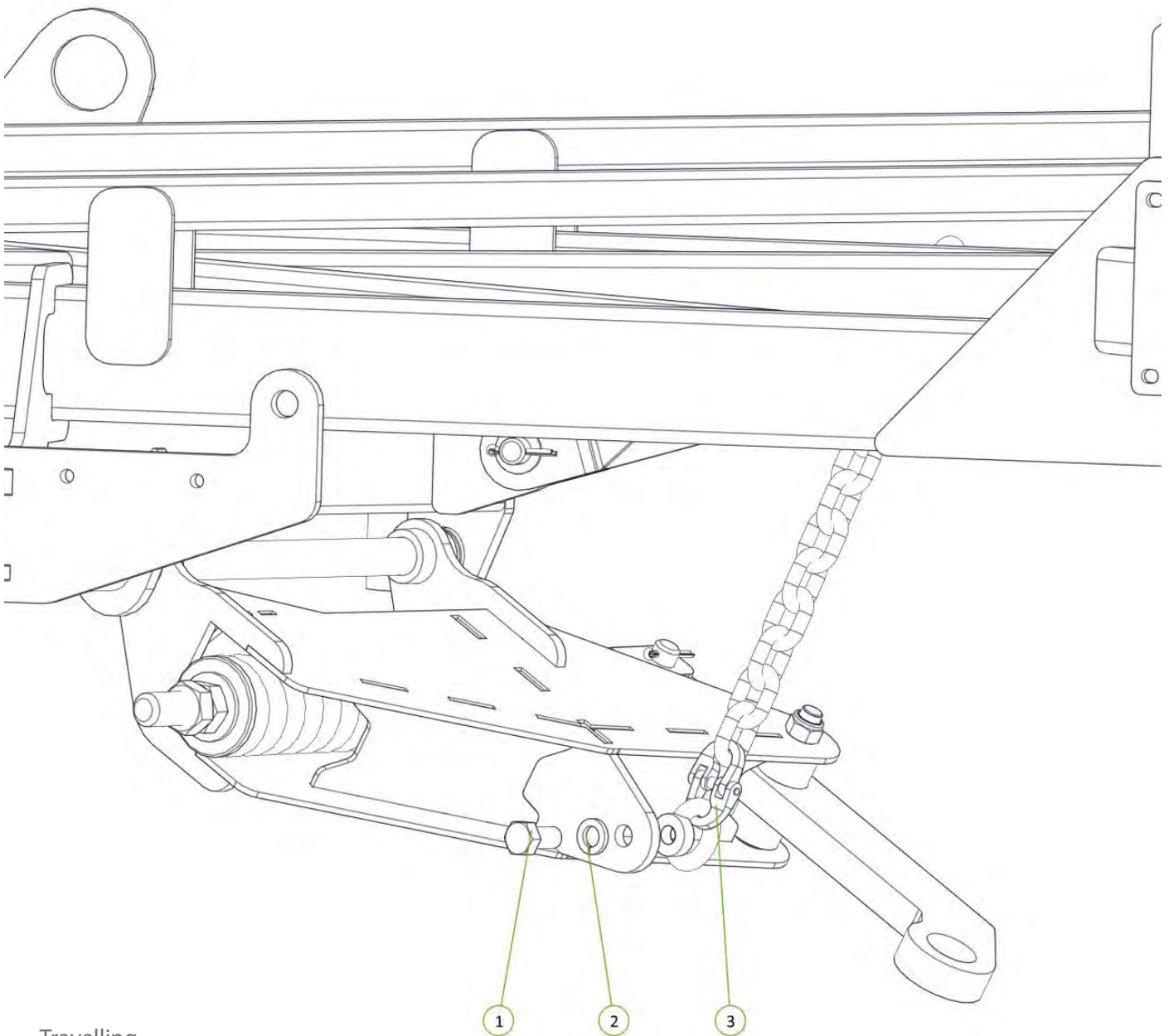


Item No.	Description	Qty	Number
1	30' Short Module Lift Plate	1	0810-107
2	Height Adjustor Retaining Clip	1	0801-KE014
3	Clevis Pin 25mm x 75mm	1	0801-KE0307-1
4	Washer Flat M24	1	0231-F24
5	M6 x 50 Cotter Pin	1	0261-PINC650

Travelling



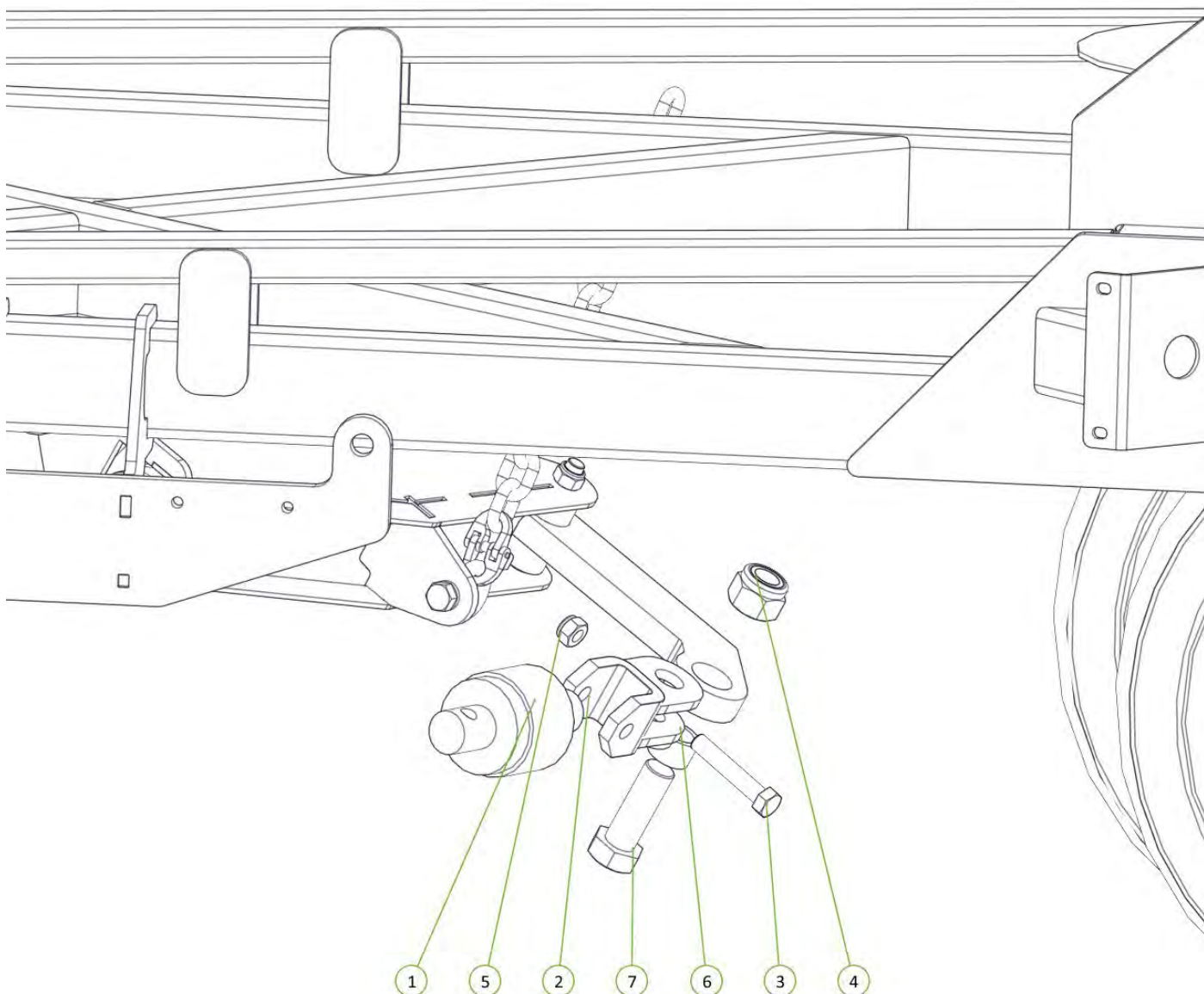
Item No.	Description	Qty	Number
1	M20 x 50 grade 8.8 ZP Bolt	1	0211-2040
2	Washer Spring M20	1	0231-S20
3	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA



Travelling



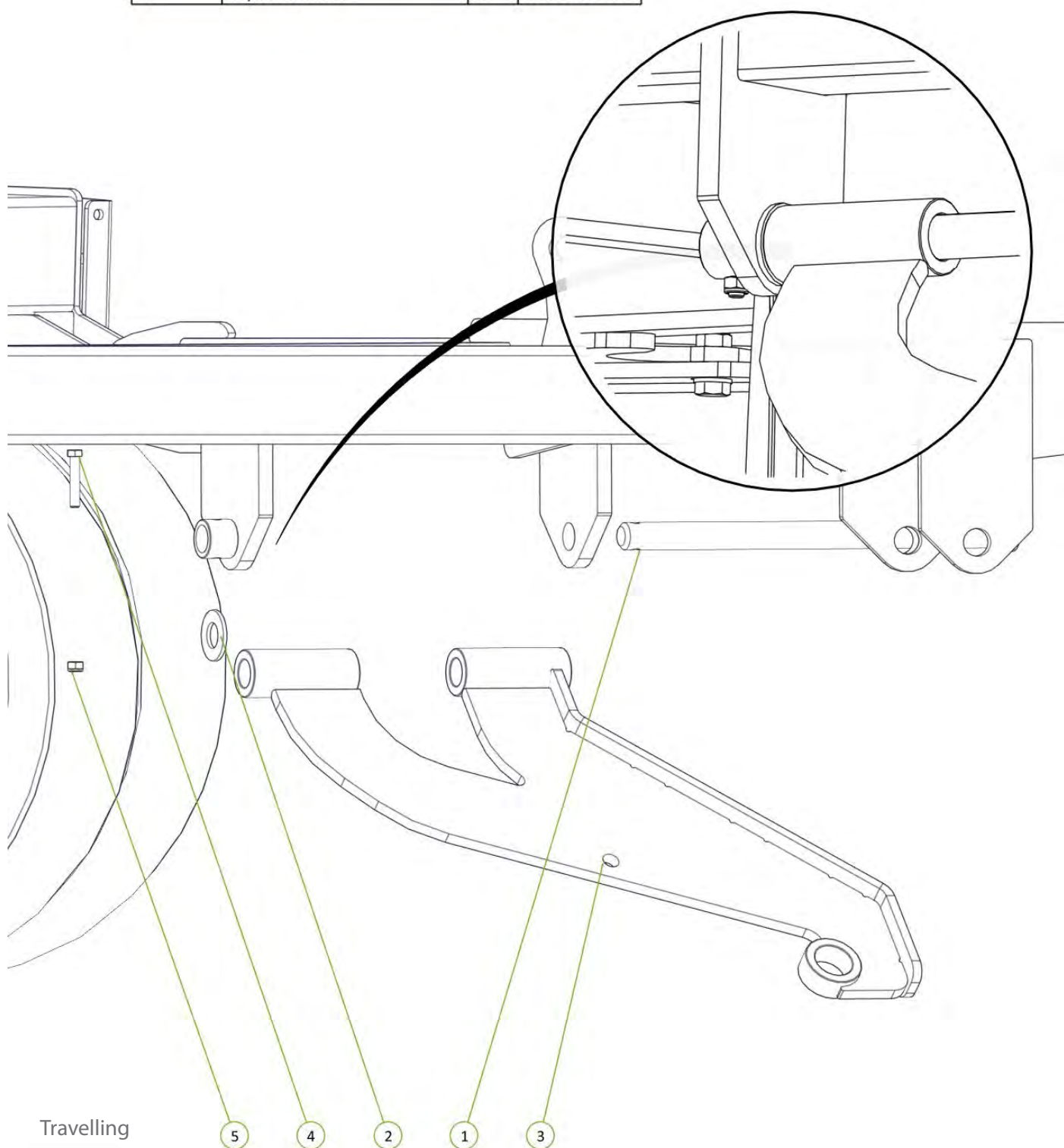
Item No.	Description	Qty	Number
1	20mm Bolt Swivel Unit	1	0802-PCHB55
2	21mm Bolt on Clevis	1	0810-KE53
3	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
4	Nyloc Nut M36	1	0221-NYL36
5	Nyloc Nut M20	1	0221-NYL20
6	Wear Bush	1	0801-SSB
7	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105



Travelling



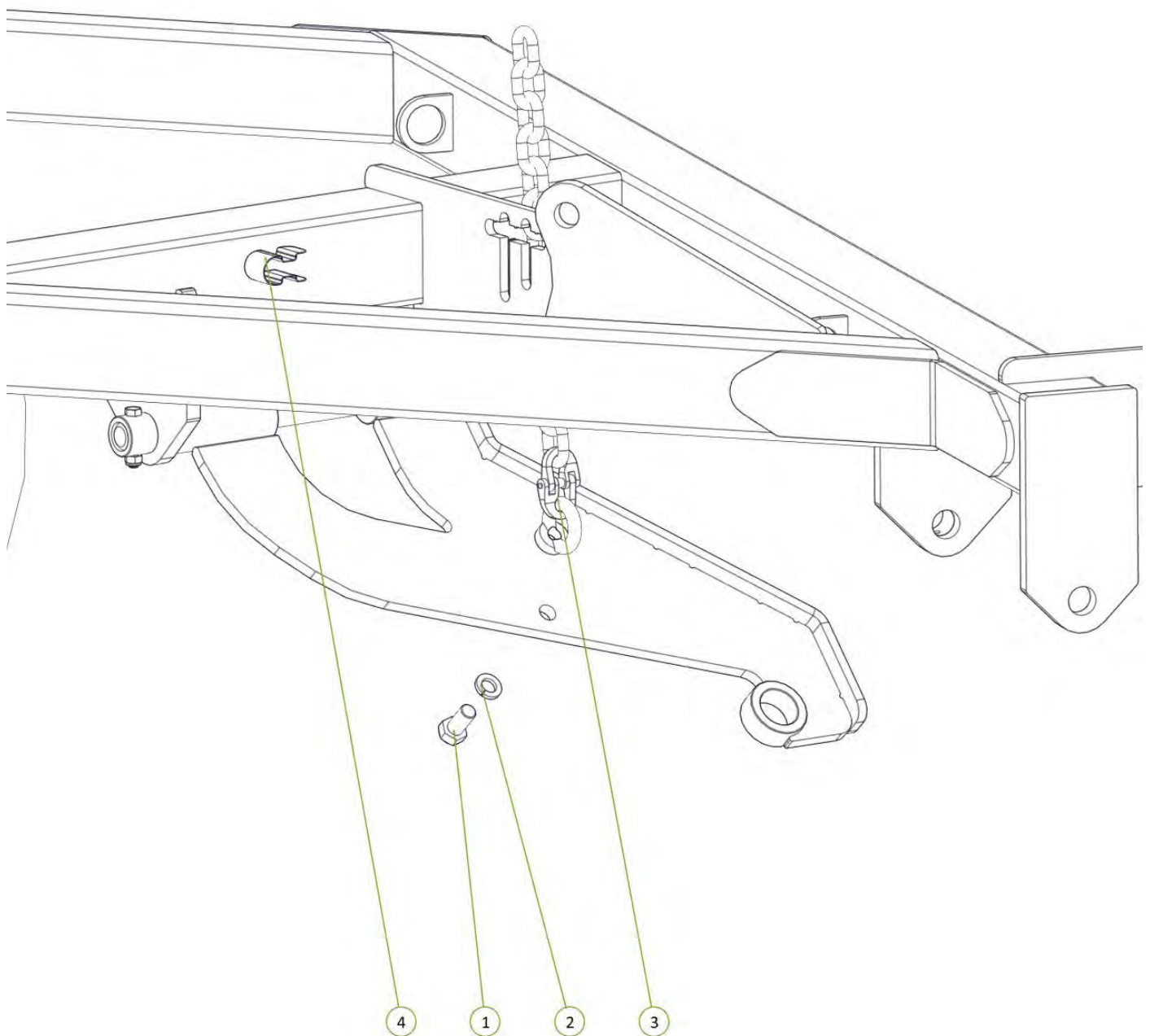
Item No.	Description	Qty	Number
1	Chain Mount Pivot Pin	1	0801-10-51
2	Washer High Tensile 1 1/4"	1	0232-HT11-4
3	Extended Chain Mount Plate	1	1510-22
4	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265
5	Nyloc Nut M12	1	0221-NYL12



Travelling



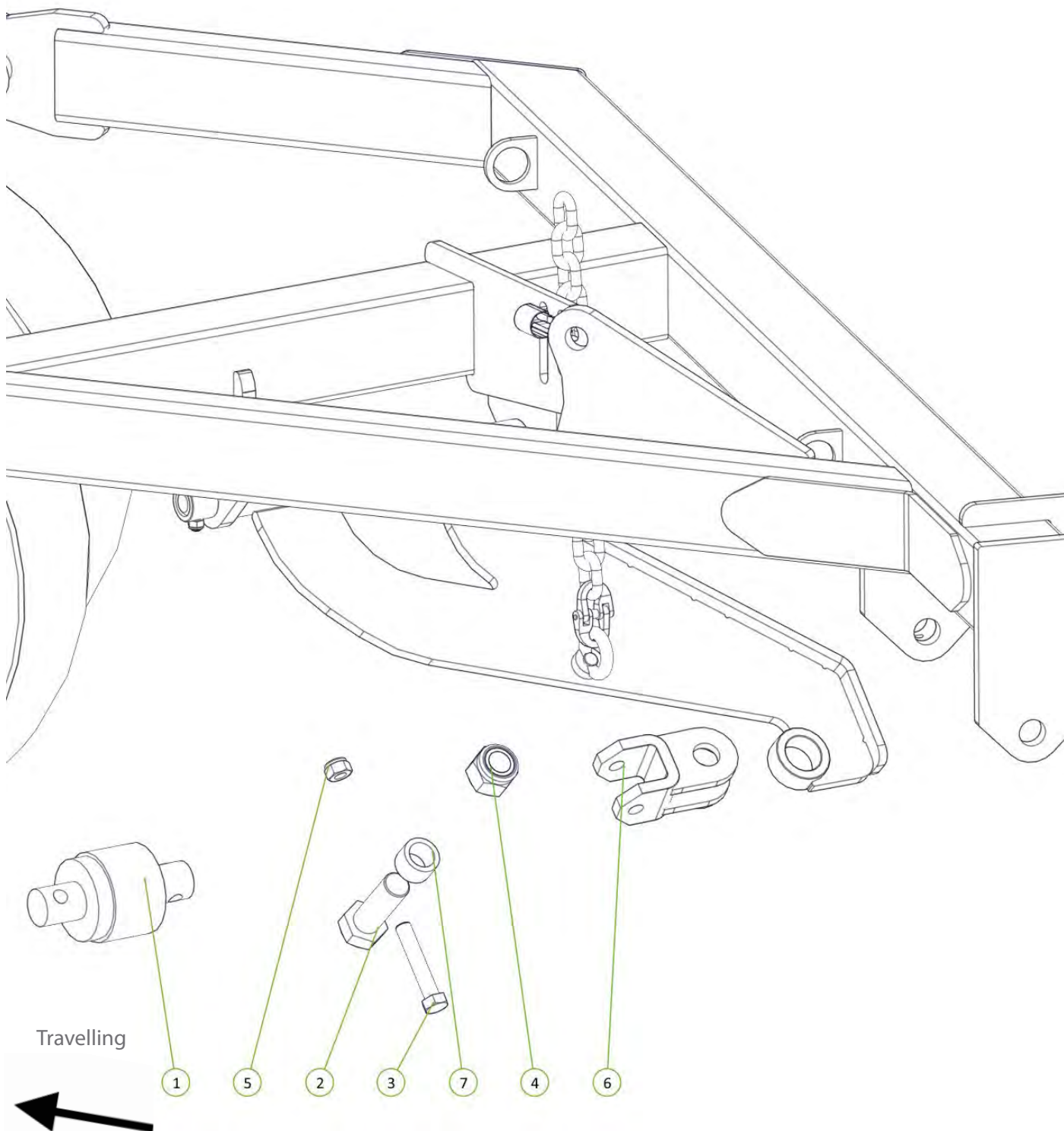
Item No.	Description	Qty	Number
1	M20 x 40 grade 8.8 ZP Bolt	1	0211-2040
2	Washer Spring M20	1	0231-S20
3	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA
4	Height Adjustor Retaining Clip	1	0801-KE014



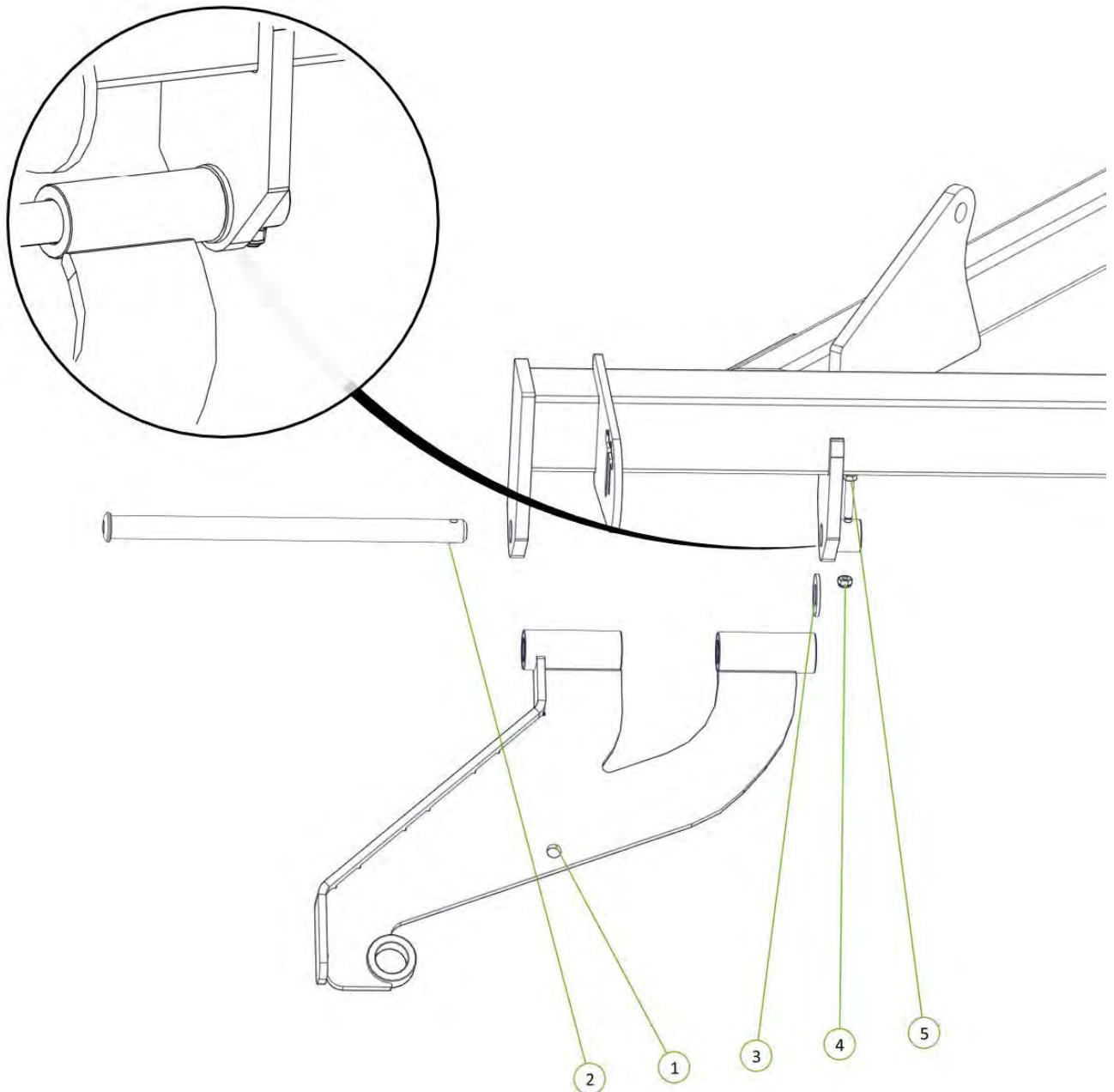
Travelling



Item No.	Description	Qty	Number
1	20mm Bolt Swivel Unit	1	0802-PCHB55
2	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
3	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
4	Nyloc Nut M36	1	0221-NYL36
5	Nyloc Nut M20	1	0221-NYL20
6	21mm Bolt on Clevis	1	0810-KE53
7	Wear Bush	1	0801-SSB



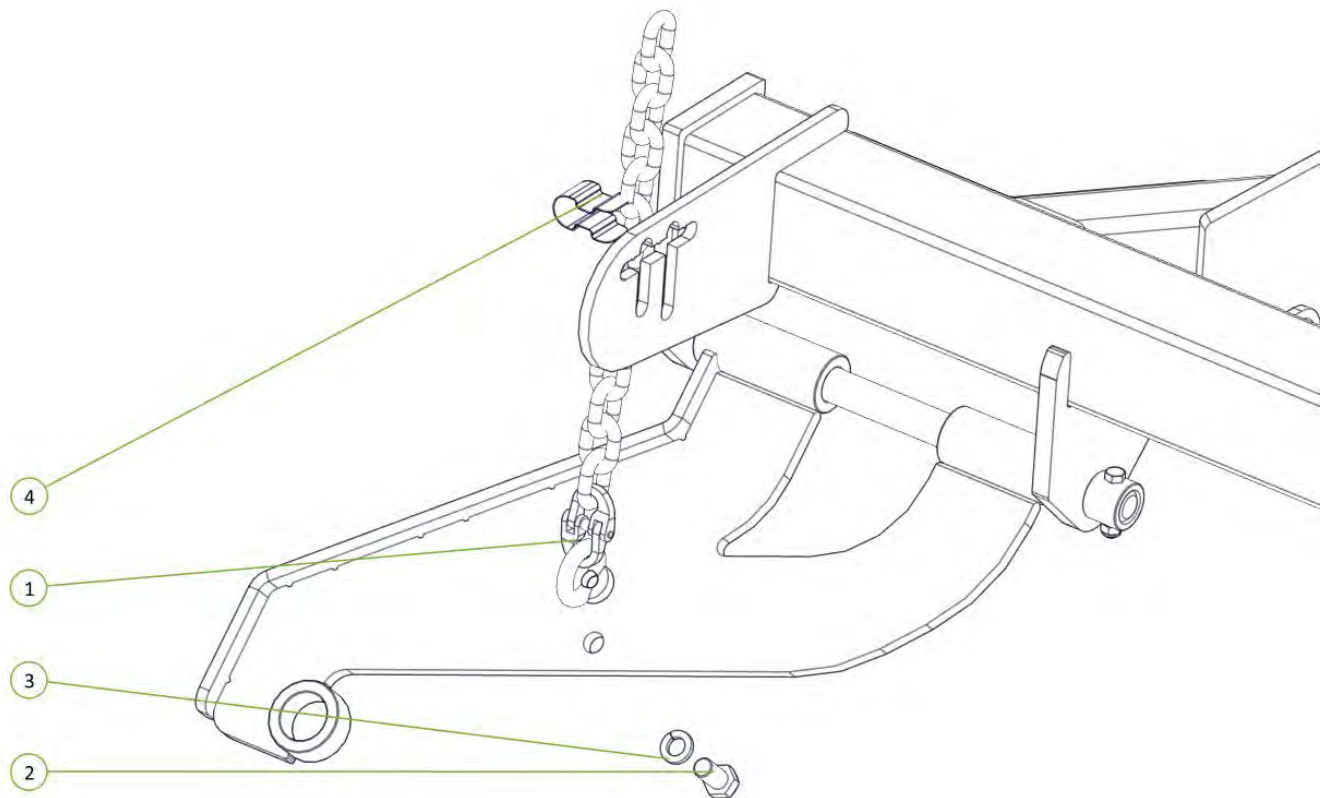
Item No.	Description	Qty	Number
1	Extended Chain mount Plate	1	1510-22
2	Chain Mount Pivot Pin	1	0801-10-51
3	Washer High Tensile 1 1/4"	1	0232-HT11-4
4	Nyloc Nut M12	1	0221-NYL12
5	M12 x 65 grade 8.8 ZP Bolt	1	0211-1265



Travelling



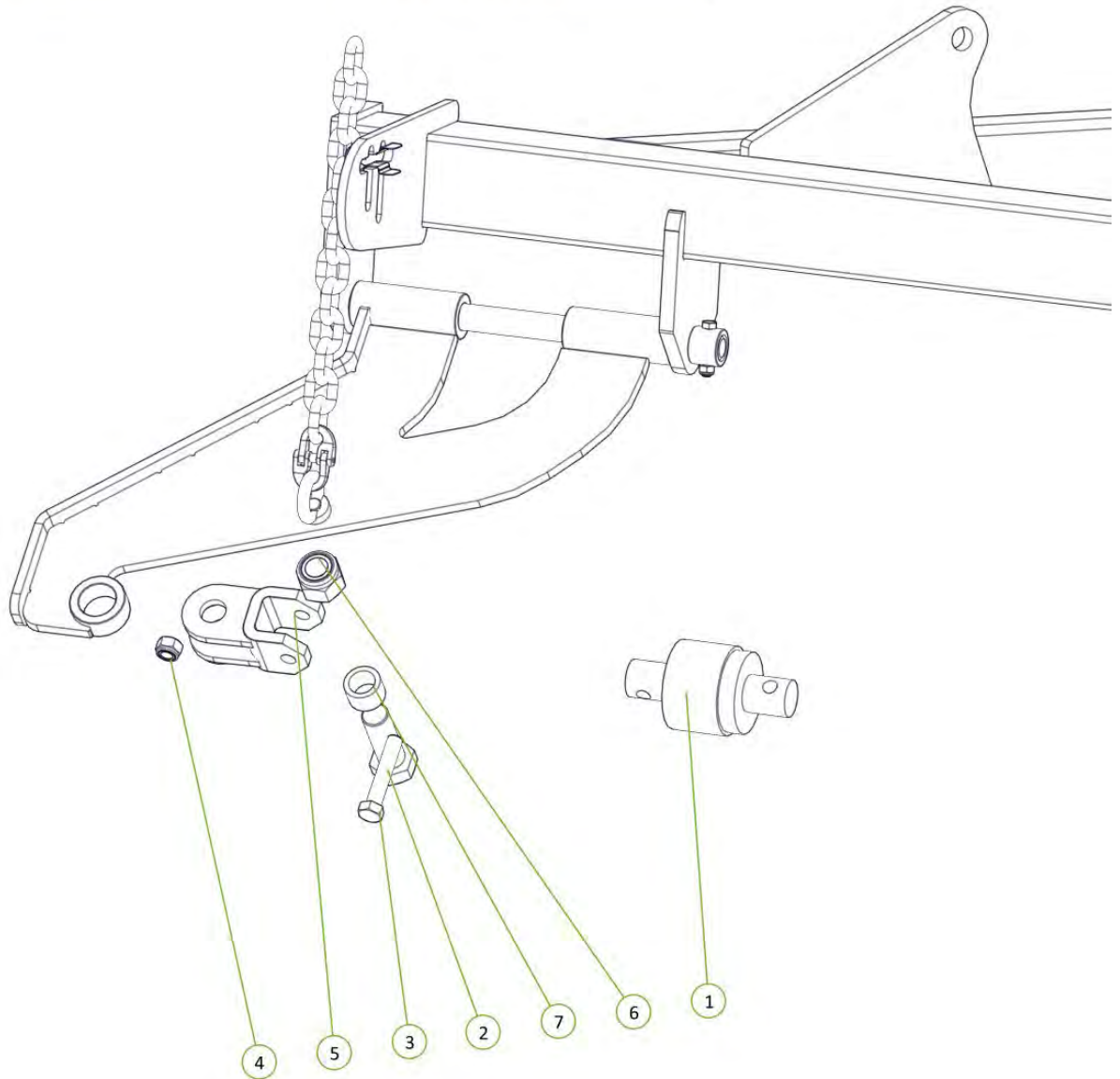
Item No.	Description	Qty	Number
1	M20 x 13mm Chain Assembly 13 Link	1	0801-20MCA
2	M20 x 40 grade 8.8 ZP Bolt	1	0211-2040
3	Washer Spring M20	1	0231-S20
4	Height Adjustor Retaining Clip	1	0801-KE014



Travelling



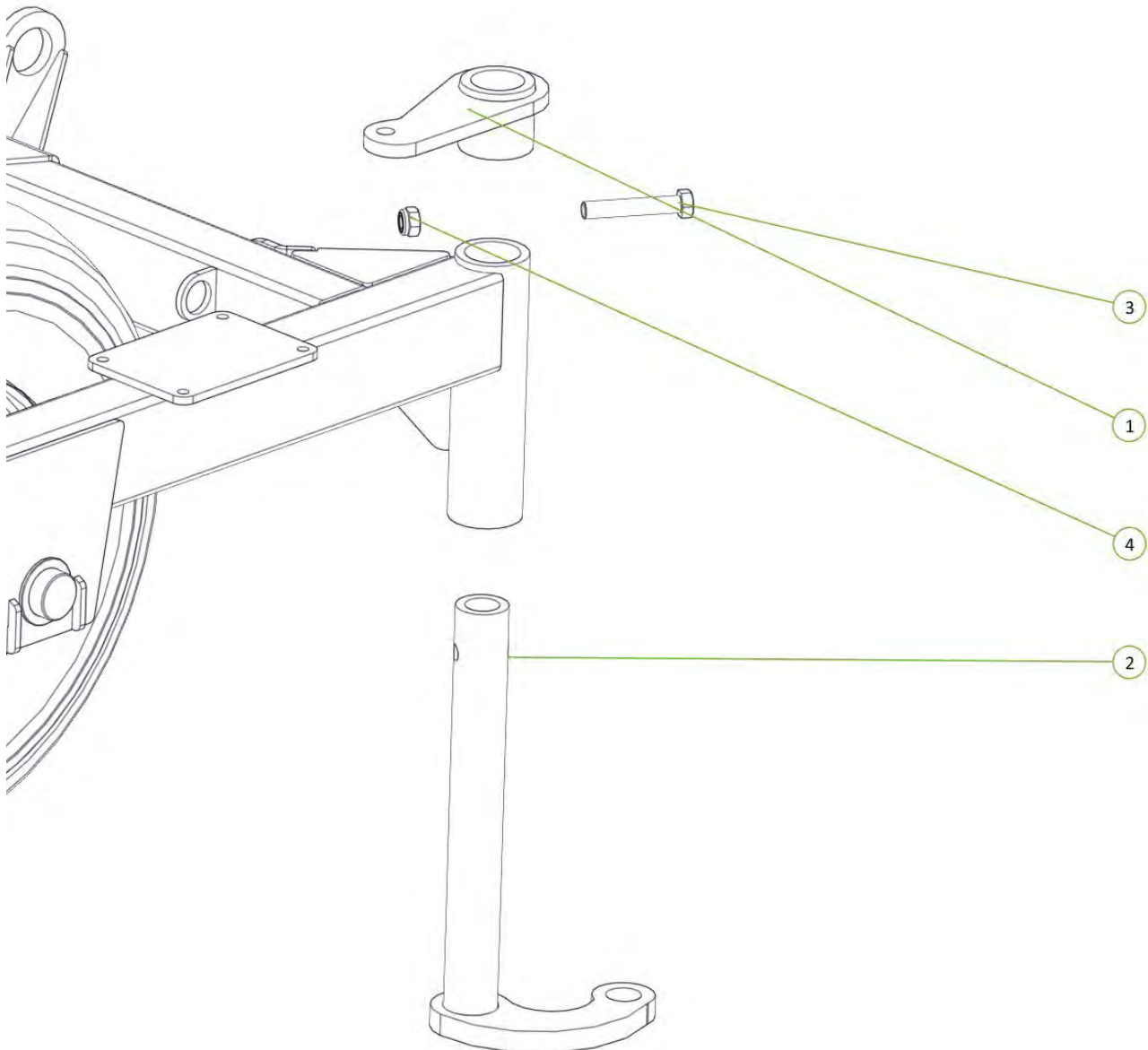
Item No.	Description	Qty	Number
1	0802-PCHB55	1	20mm Bolt Swivel Unit
2	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
3	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
4	Nyloc Nut M20	1	0221-NYL20
5	21mm Bolt on Clevis	1	0810-KE53
6	Nyloc Nut M36	1	0221-NYL36
7	Wear Bush	1	0801-SSB



Travelling



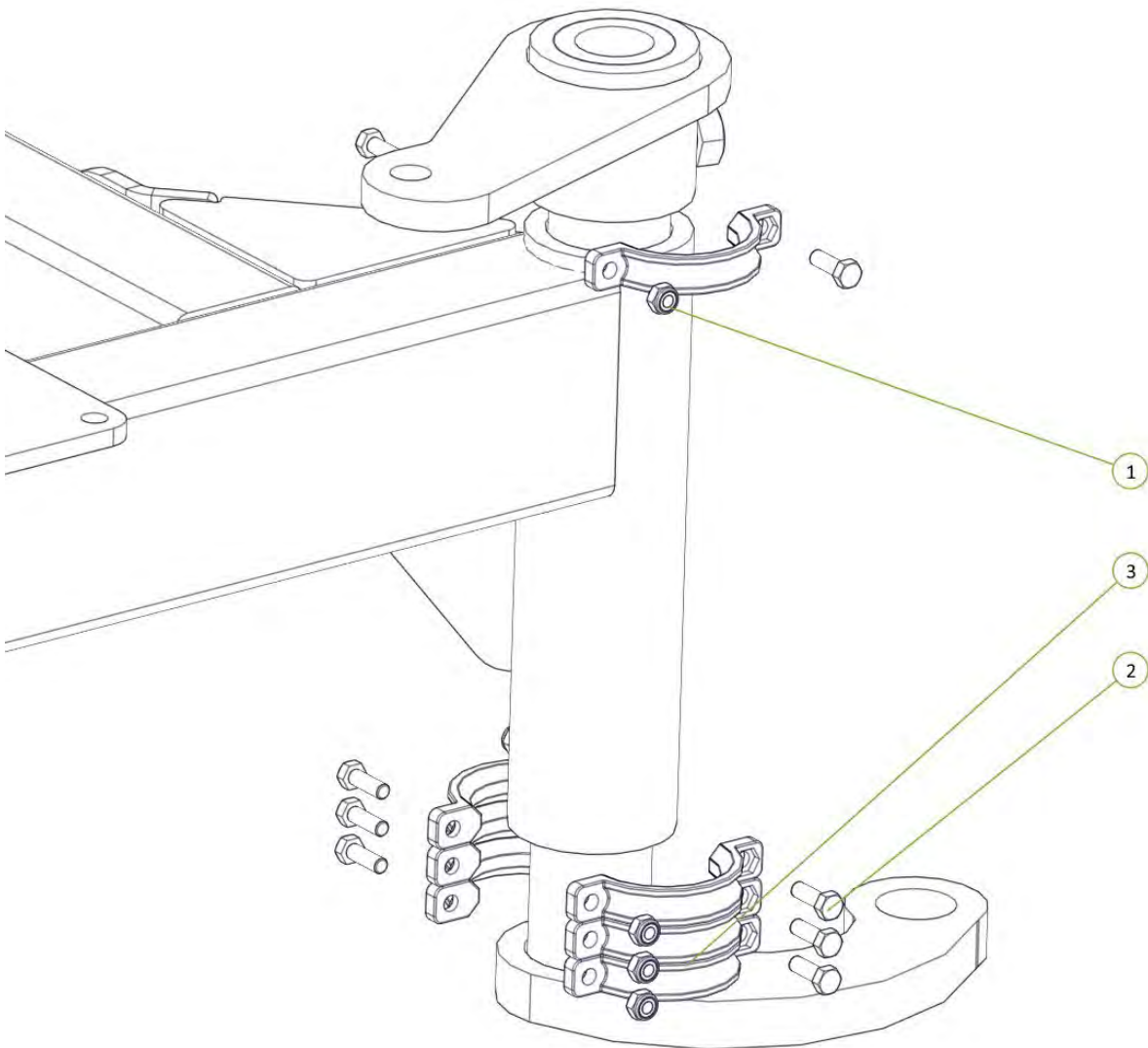
Item No.	Description	Qty	Number
1	RH Chain Adjusting Lug	1	0810-27
2	RH Drop Leg	1	0810-25
3	M24 x 140 grade 8.8 zp Bolt	1	0211-24140
4	Nyloc Nut M24	1	0221-NYL24



Travelling



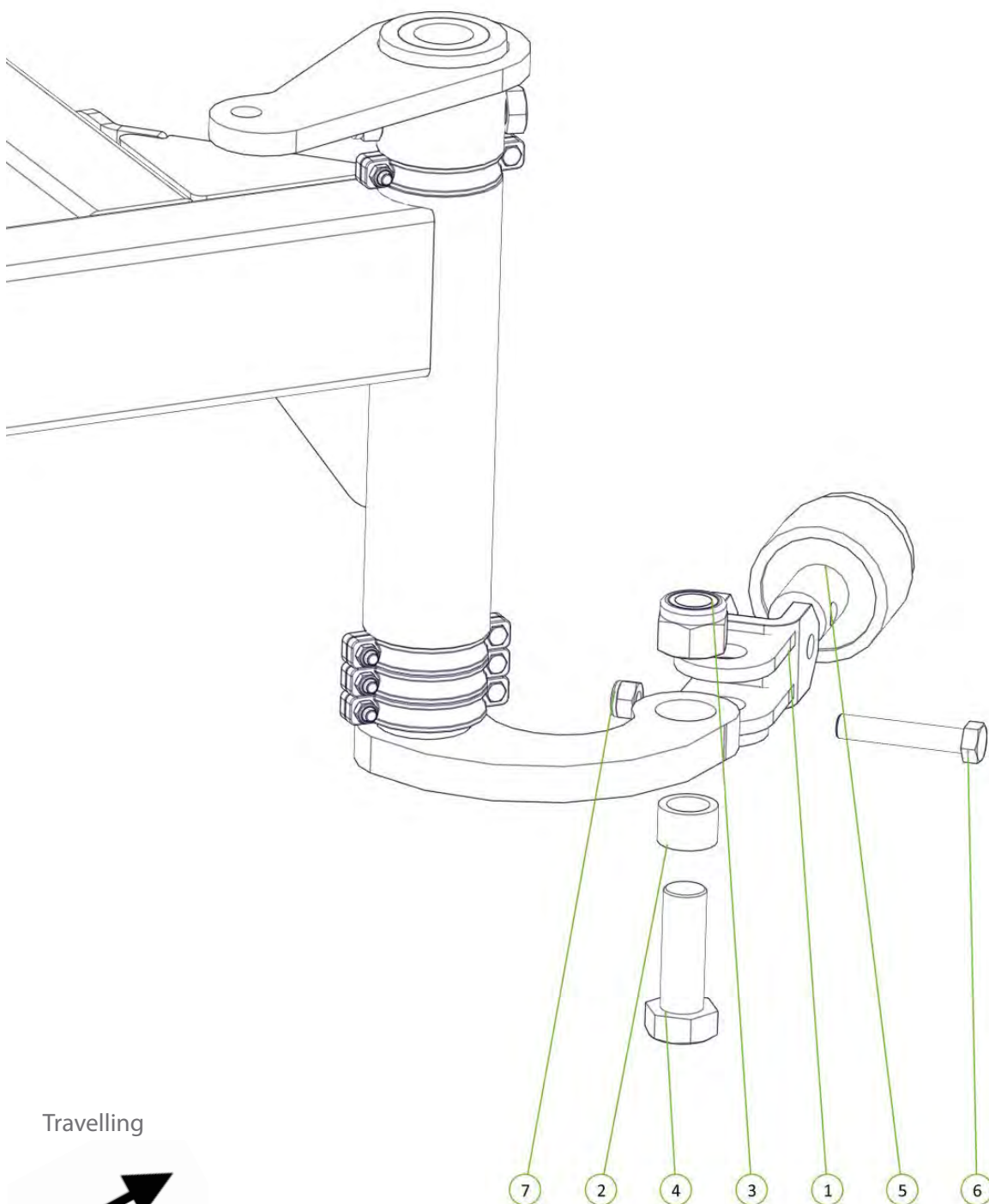
Item No.	Description	Qty	Number
1	Nyloc Nut M10	8	0221-NYL10
2	M10 x 30 grade 8.8 ZP Bolt	8	0211-1030
3	25mm Drop Leg Spacer Half	8	0801-CS25



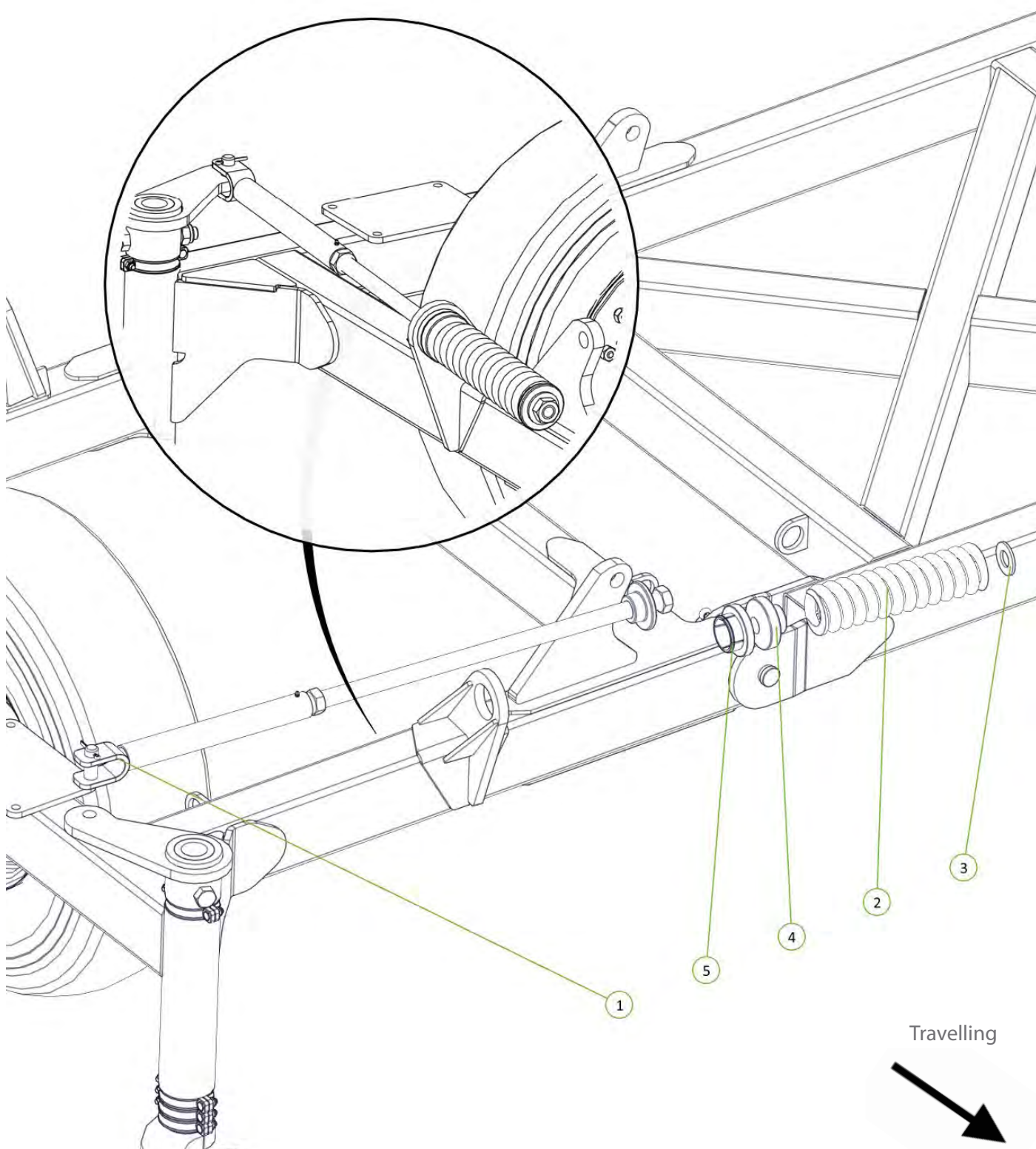
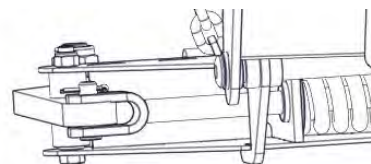
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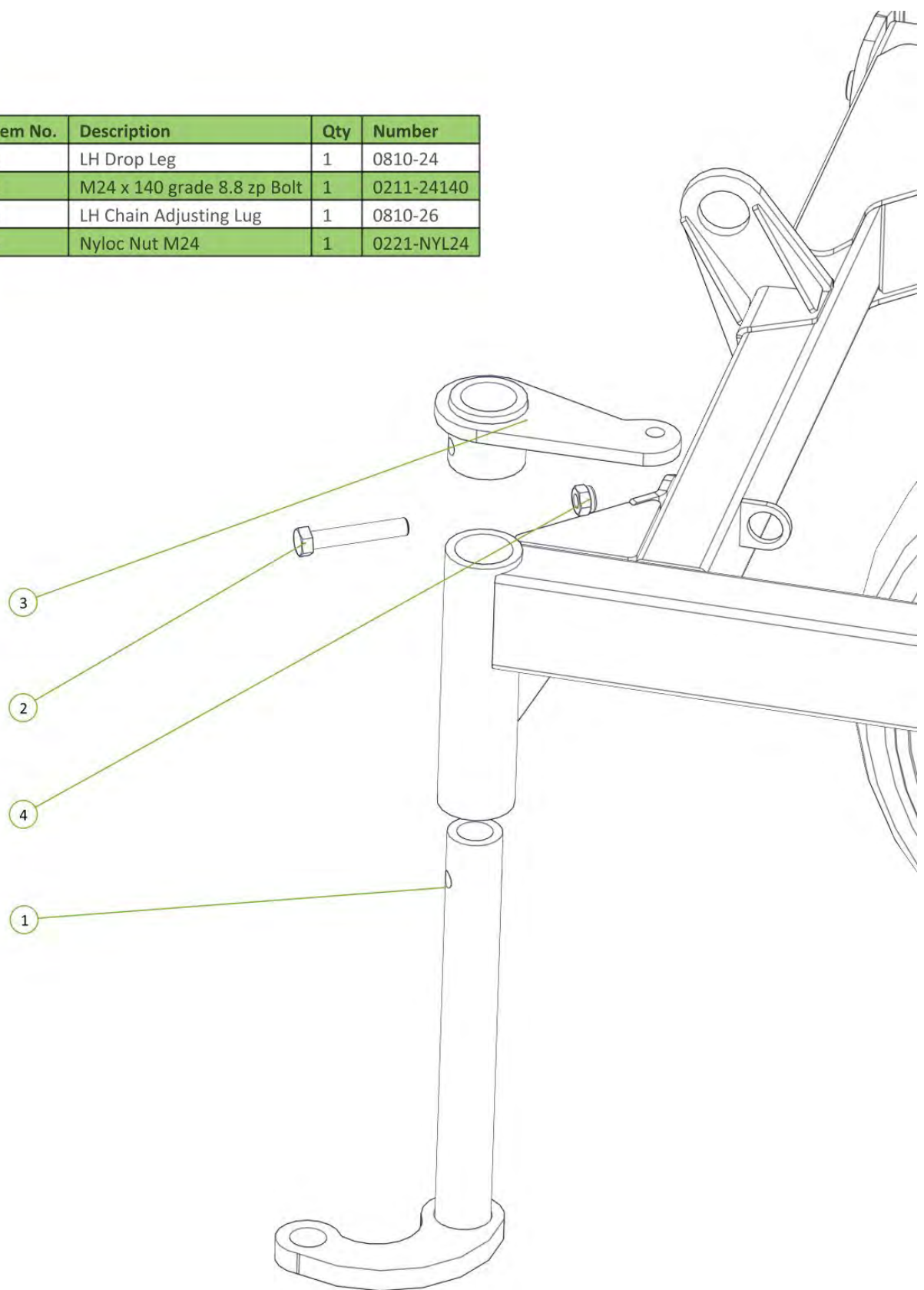
Item No.	Description	Qty	Number
1	21mm Bolt on Clevis	1	0810-KE53
2	Wear Bush	1	0801-SSB
3	Nyloc Nut M36	1	0221-NYL36
4	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
5	20mm Bolt Swivel Unit	1	0802-PCHB55
6	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
7	Nyloc Nut M20	1	0221-NYL20



Item No.	Description	Qty	Number
1	Chain Tension Adjustor	1	0802-PCHTA
2	20mm Compression Spring, Black	1	0801-XK9261S
3	Washer High Tensile 1 1/4"	1	0232-HT11-4
4	Tensioner Cup - Male	1	0801-KE0805-3
5	Tensioner Cup-Female	1	0801-KE0805-4



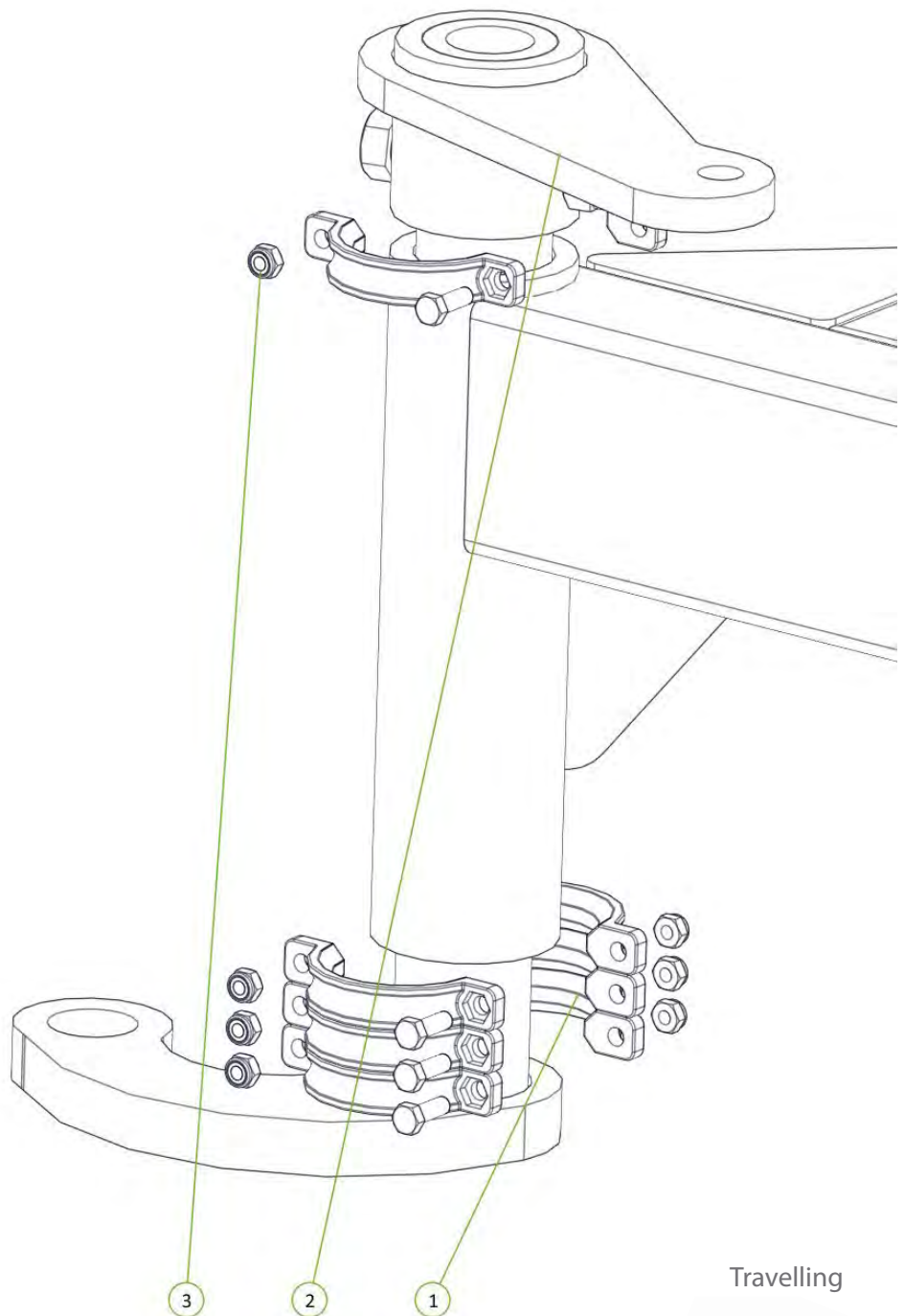
Item No.	Description	Qty	Number
1	LH Drop Leg	1	0810-24
2	M24 x 140 grade 8.8 zp Bolt	1	0211-24140
3	LH Chain Adjusting Lug	1	0810-26
4	Nyloc Nut M24	1	0221-NYL24



Travelling



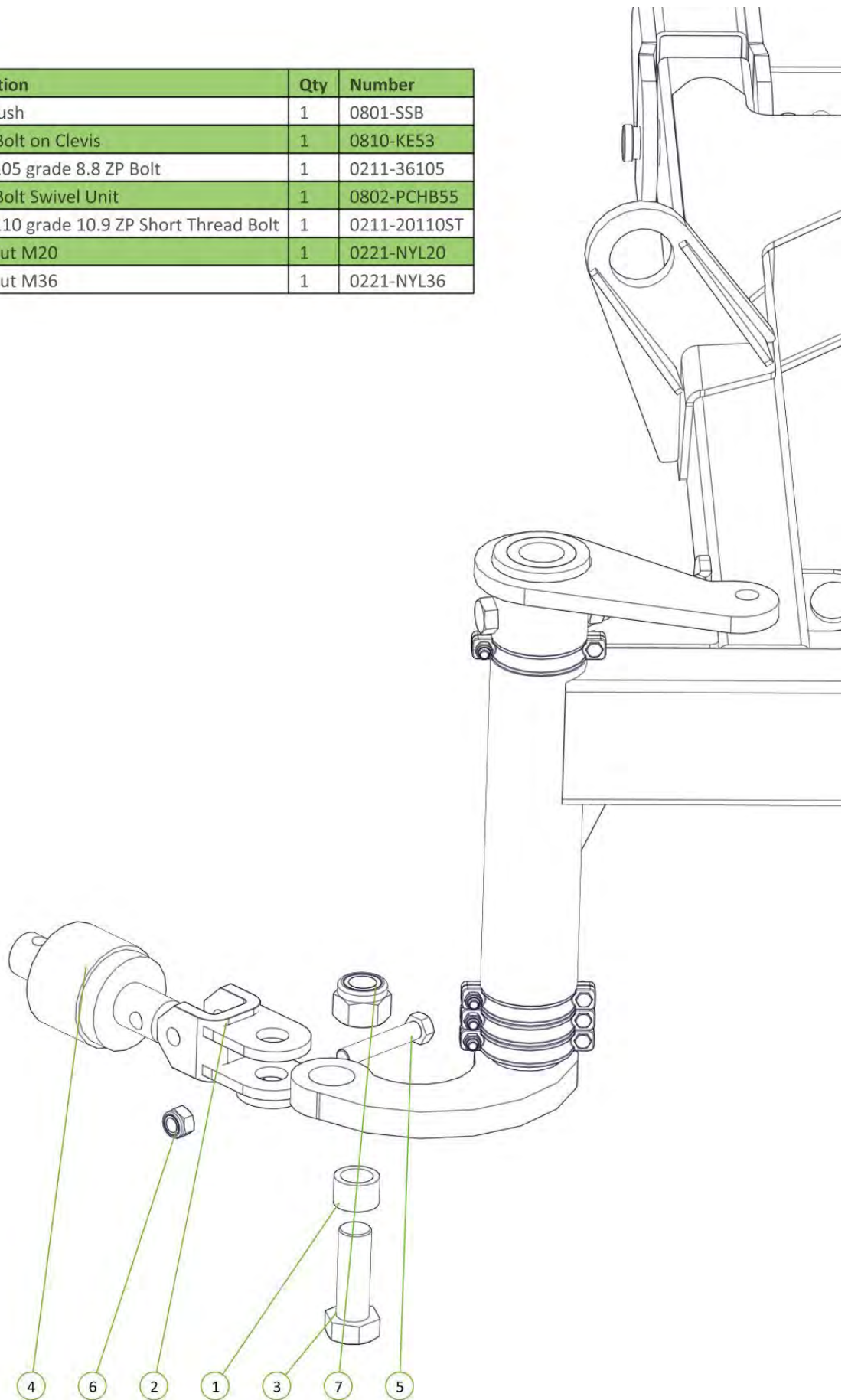
Item No.	Description	Qty	Number
1	25mm Drop Leg Spacer Half	8	0801-CS25
2	M10 x 30 grade 8.8 ZP Bolt	8	0211-1030
3	Nyloc Nut M10	8	0221-NYL10



Travelling



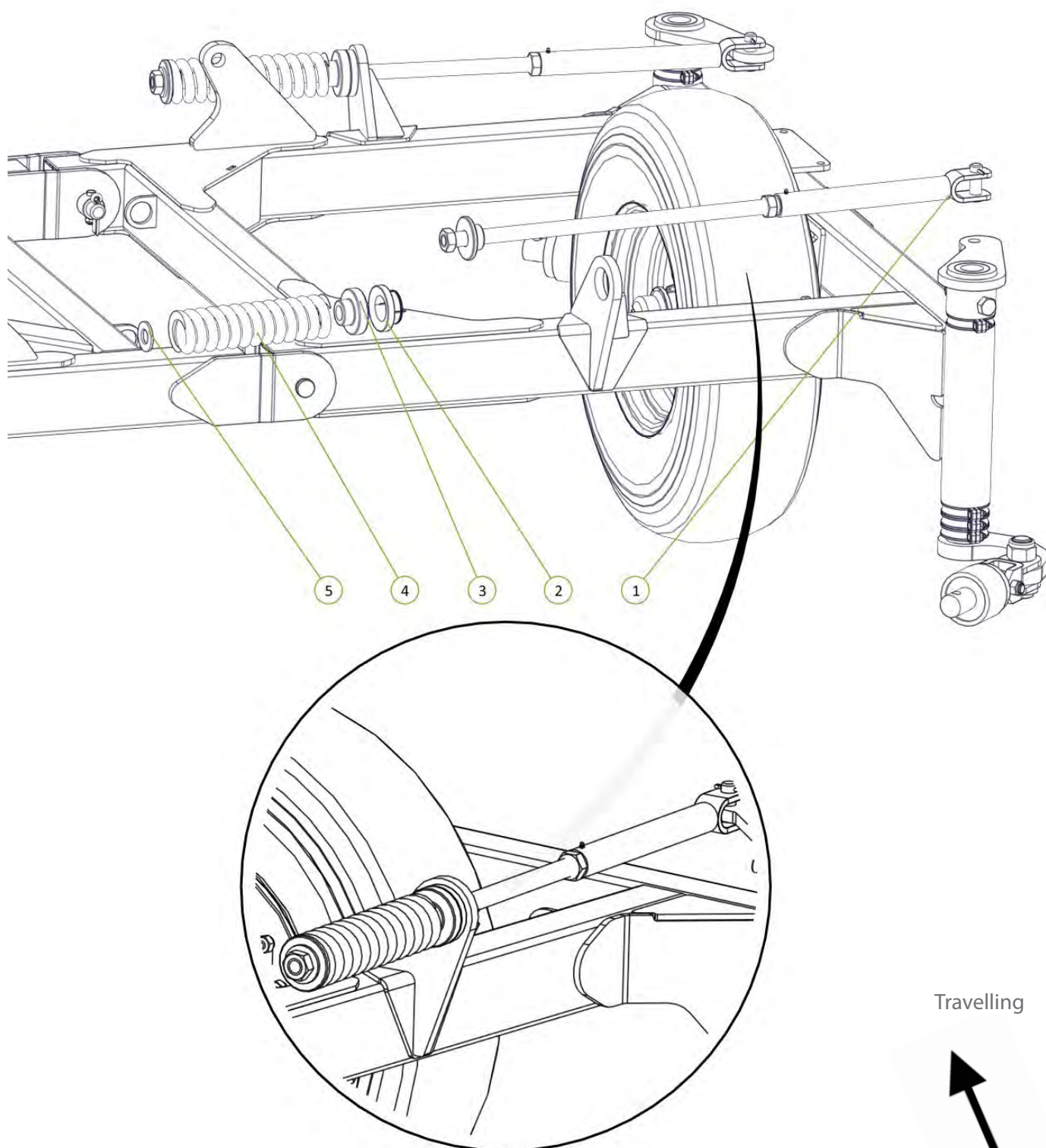
Item No.	Description	Qty	Number
1	Wear Bush	1	0801-SSB
2	21mm Bolt on Clevis	1	0810-KE53
3	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
4	20mm Bolt Swivel Unit	1	0802-PCHB55
5	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
6	Nyloc Nut M20	1	0221-NYL20
7	Nyloc Nut M36	1	0221-NYL36



Travelling



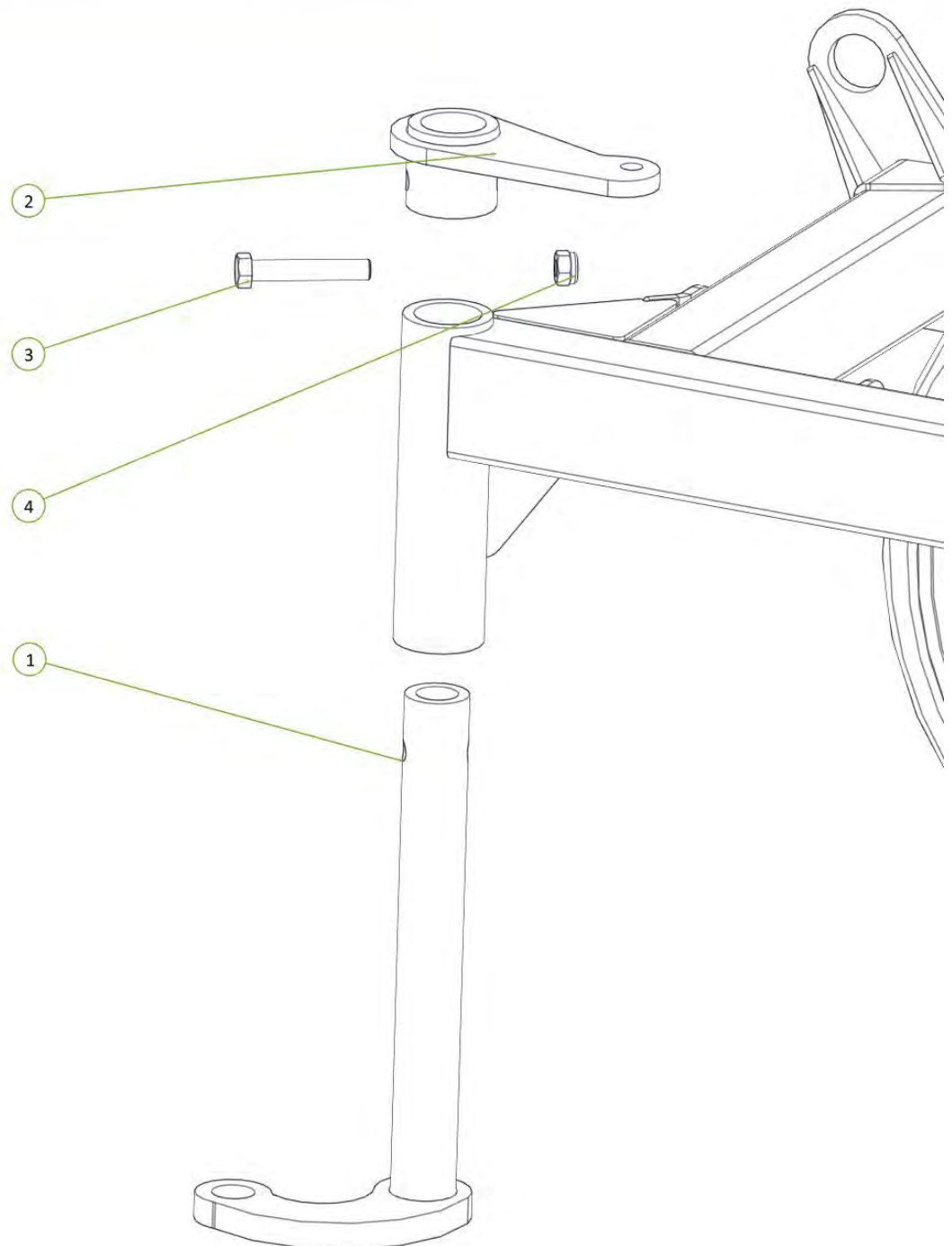
Item No.	Description	Qty	Number
1	Chain Tension Adjustor	1	0802-PCHTA
2	Tensioner Cup-Female	1	0801-KE0805-4
3	Tensioner Cup - Male	1	0801-KE0805-3
4	20mm Compression Spring, Black	1	0801-XK9261S
5	Washer High Tensile 1 1/4"	1	0232-HT11-4



Travelling



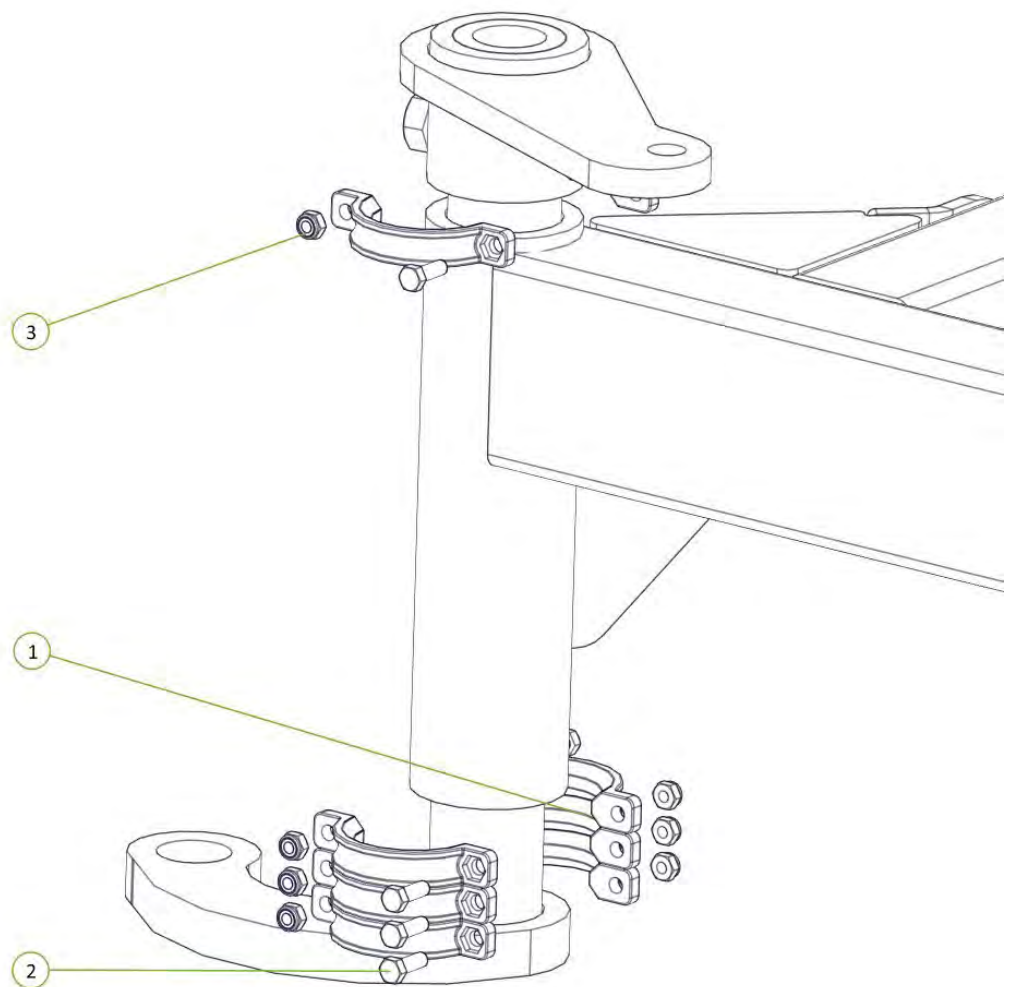
Item No.	Description	Qty	Number
1	LH Drop Leg	1	0810-24
2	LH Chain Adjusting Lug	1	0810-26
3	M24 x 140 grade 8.8 zp Bolt	1	0211-24140
4	Nyloc Nut M24	1	0221-NYL24



Travelling



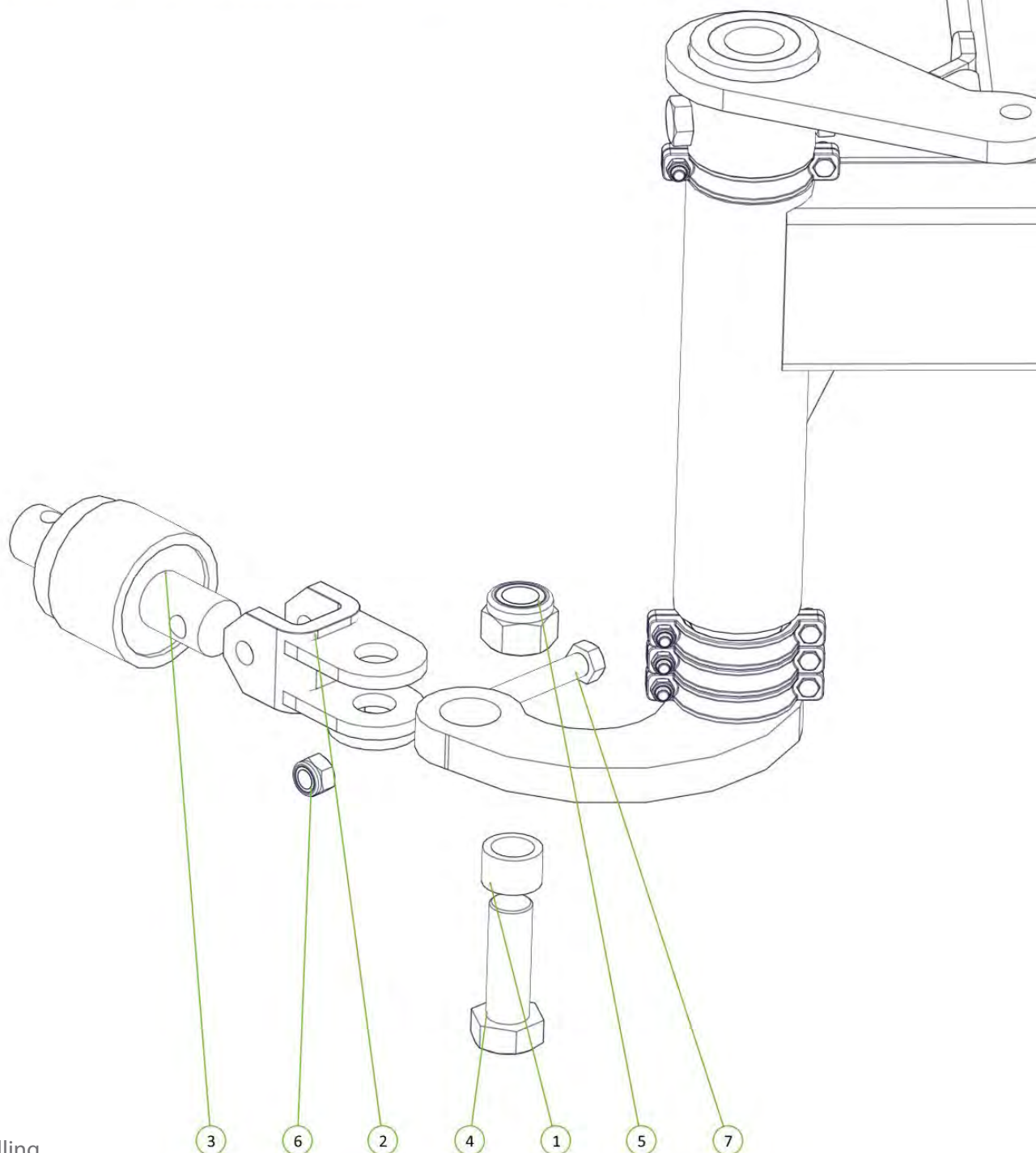
Item No.	Description	Qty	Number
1	25mm Drop Leg Spacer Half	8	0801-CS25
2	M10 x 30 grade 8.8 ZP Bolt	8	0211-1030
3	Nyloc Nut M10	8	0221-NYL10



Travelling



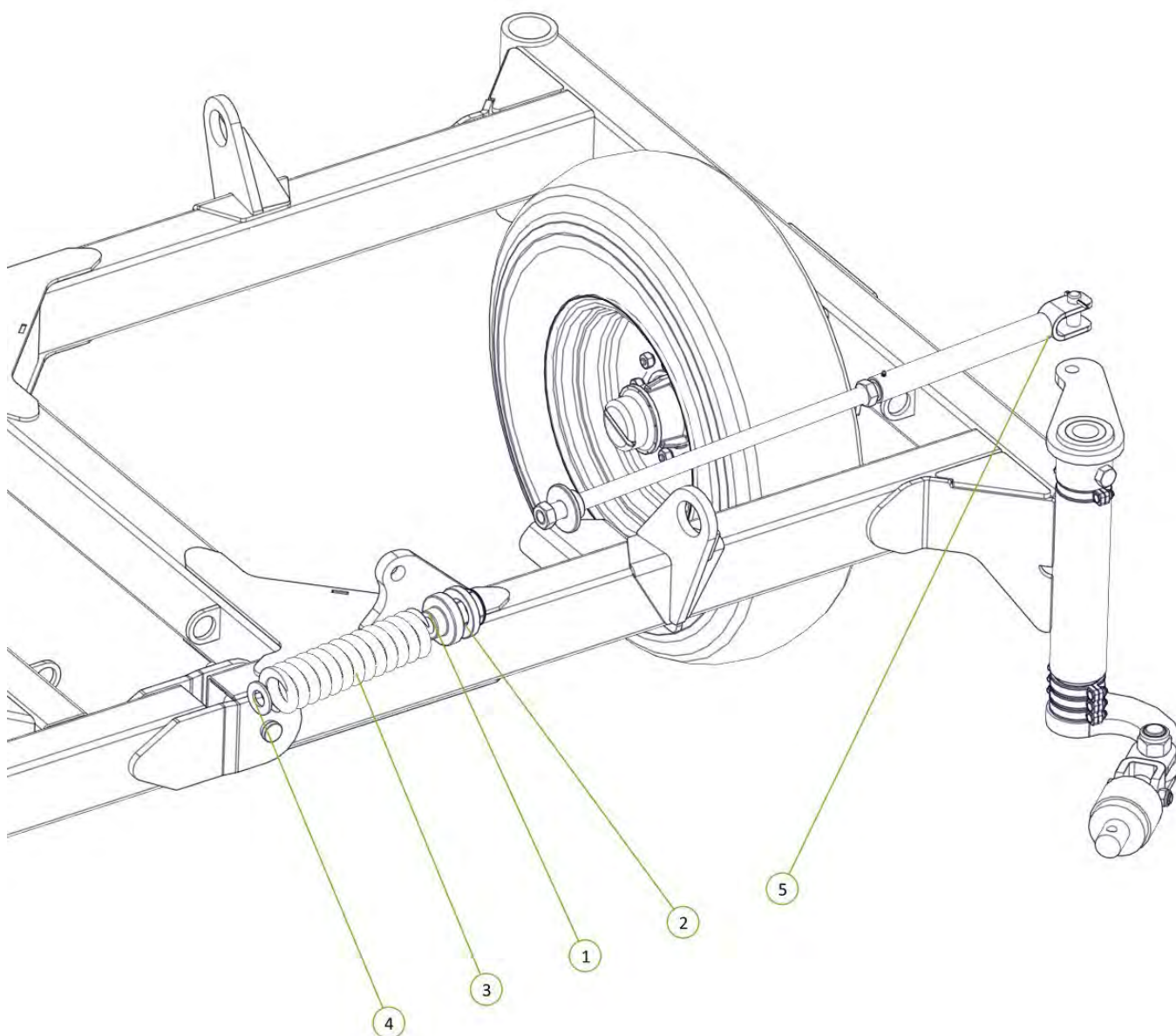
Item No.	Description	Qty	Number
1	Wear Bush	1	0801-SSB
2	21mm Bolt On Clevis	1	0810-KU53
3	20mm Bolt Swivel Unit	1	0802-PCHB55
4	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
5	Nyloc Nut M36	1	0221-NYL36
6	Nyloc Nut M20	1	0221-NYL20
7	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST



Travelling



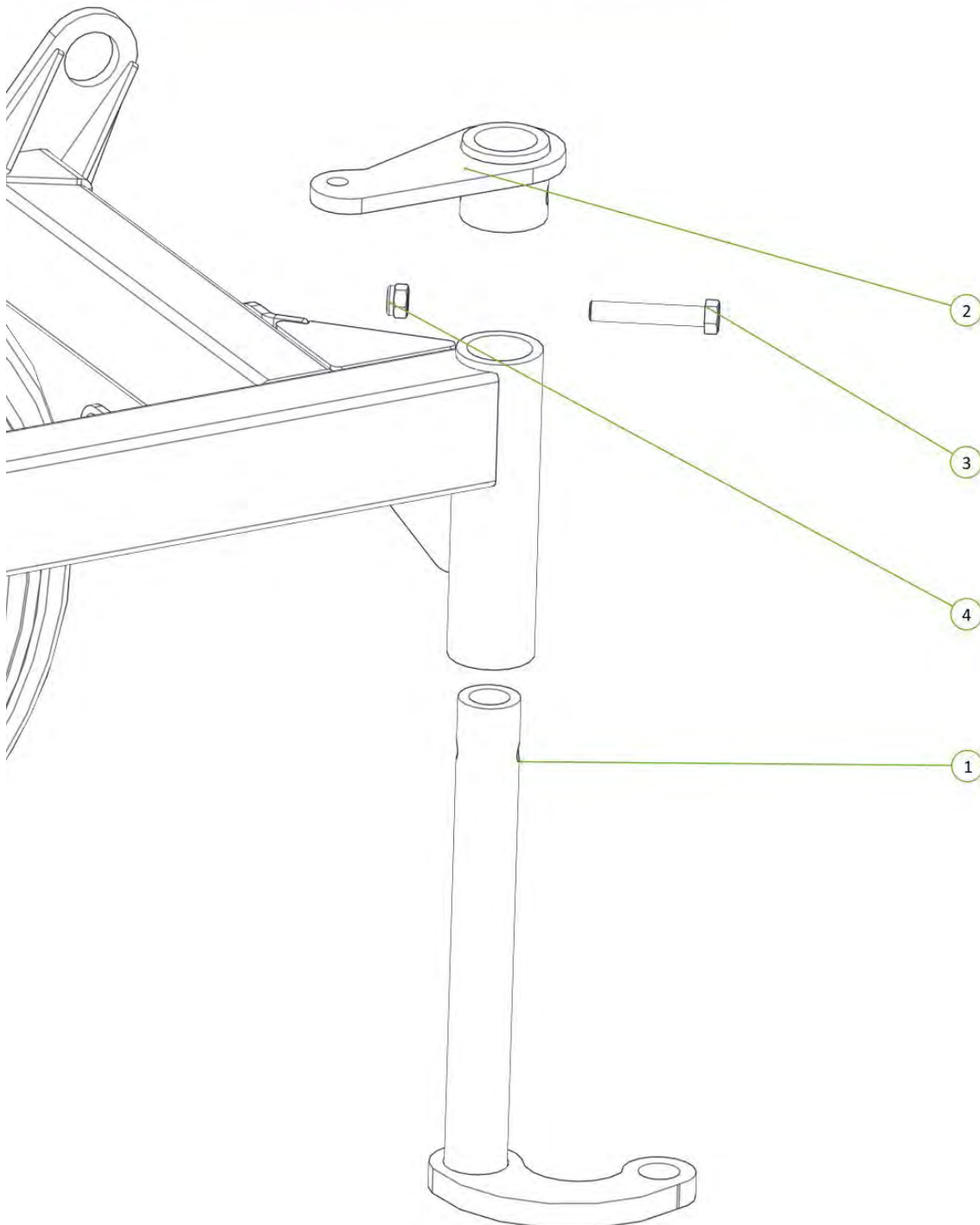
Item No.	Description	Qty	Number
1	Tensioner Cup - Male	1	0801-KE0805-3
2	Tensioner Cup-Female	1	0801-KE0805-4
3	20mm Compression Spring, Black	1	0801-XK9261S
4	Washer High Tensile 1 1/4"	1	0232-HT11-4
5	Chain Tension Adjustor	1	0802-PCHTA



Travelling



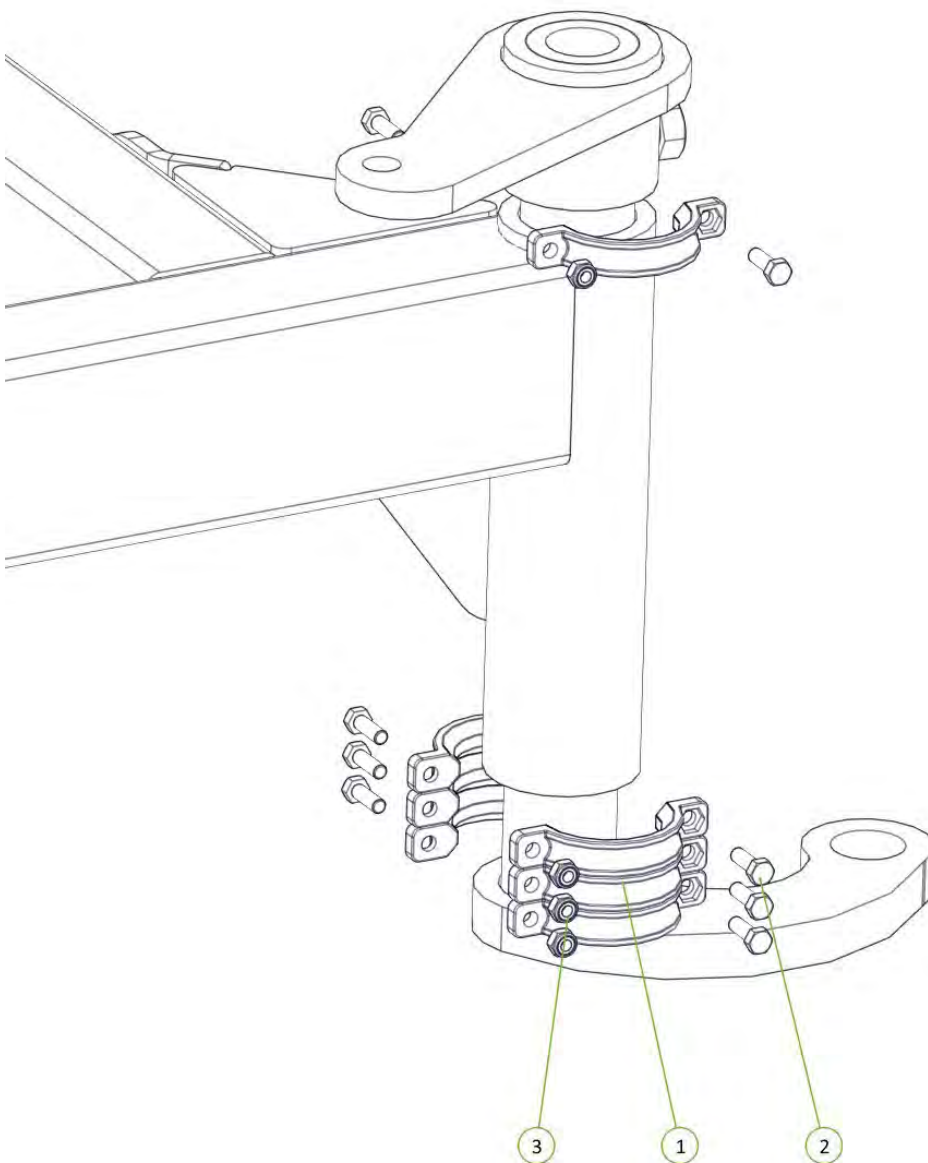
Item No.	Description	Qty	Number
1	RH Drop leg	1	0810-25
2	RH Chain Adjusting Lug	1	0810-27
3	M24 x 140 grade 8.8 zp Bolt	1	0211-24140
4	Nyloc Nut M24	1	0221-NYL24



Travelling



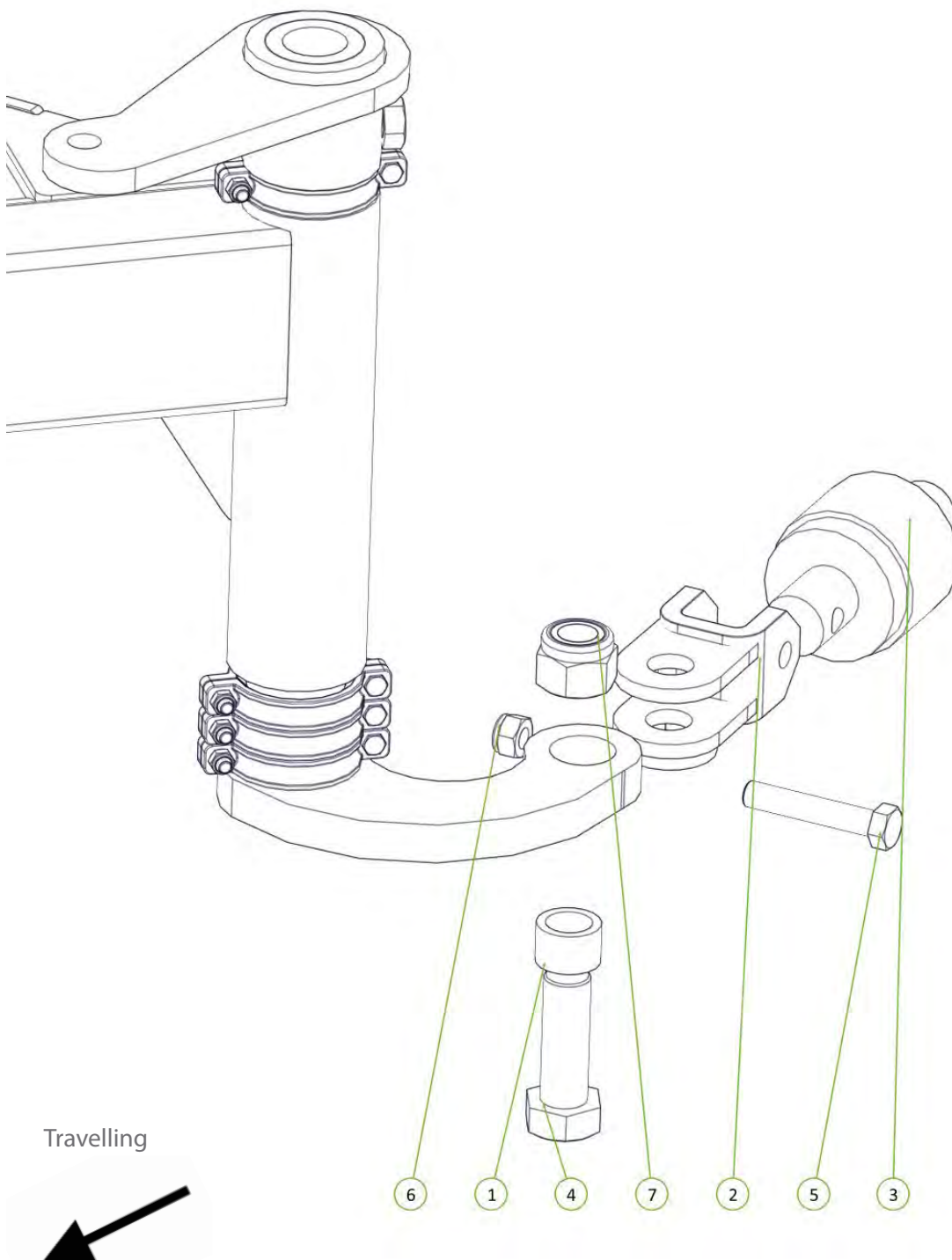
Item No.	Description	Qty	Number
1	25mm Drop Leg Spacer Half	8	0801-CS25
2	M10 x 30 grade 8.8 ZP Bolt	8	0211-1030
3	Nyloc Nut M10	8	0221-NYL10



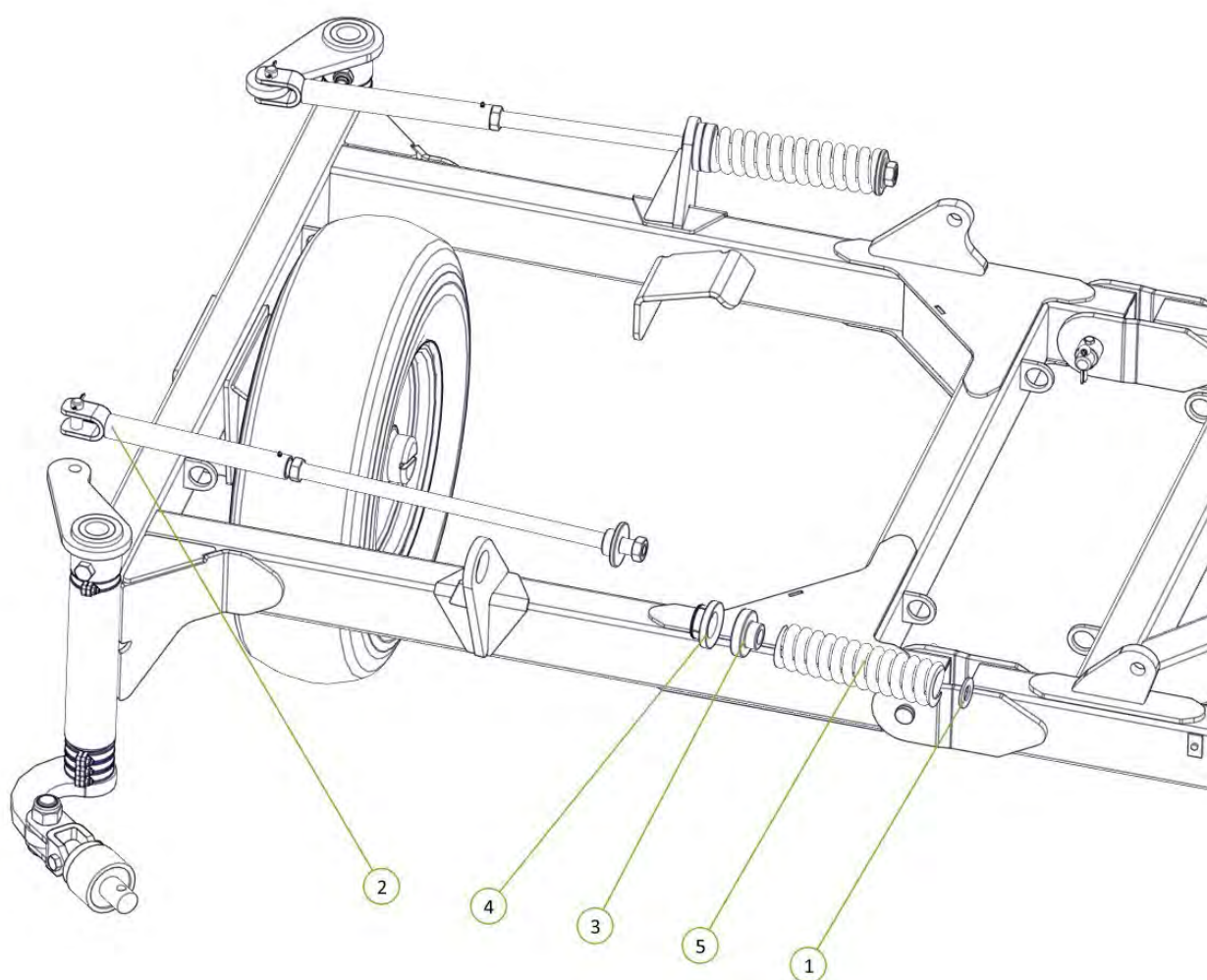
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Item No.	Description	Qty	Number
1	Wear Bush	1	0801-SSB
2	21mm Bolt On Clevis	1	0810-KU53
3	20mm Bolt Swivel Unit	1	0802-PCHB55
4	M36 x 105 grade 8.8 ZP Bolt	1	0211-36105
5	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
6	Nyloc Nut M20	1	0221-NYL20
7	Nyloc Nut M36	1	0221-NYL36



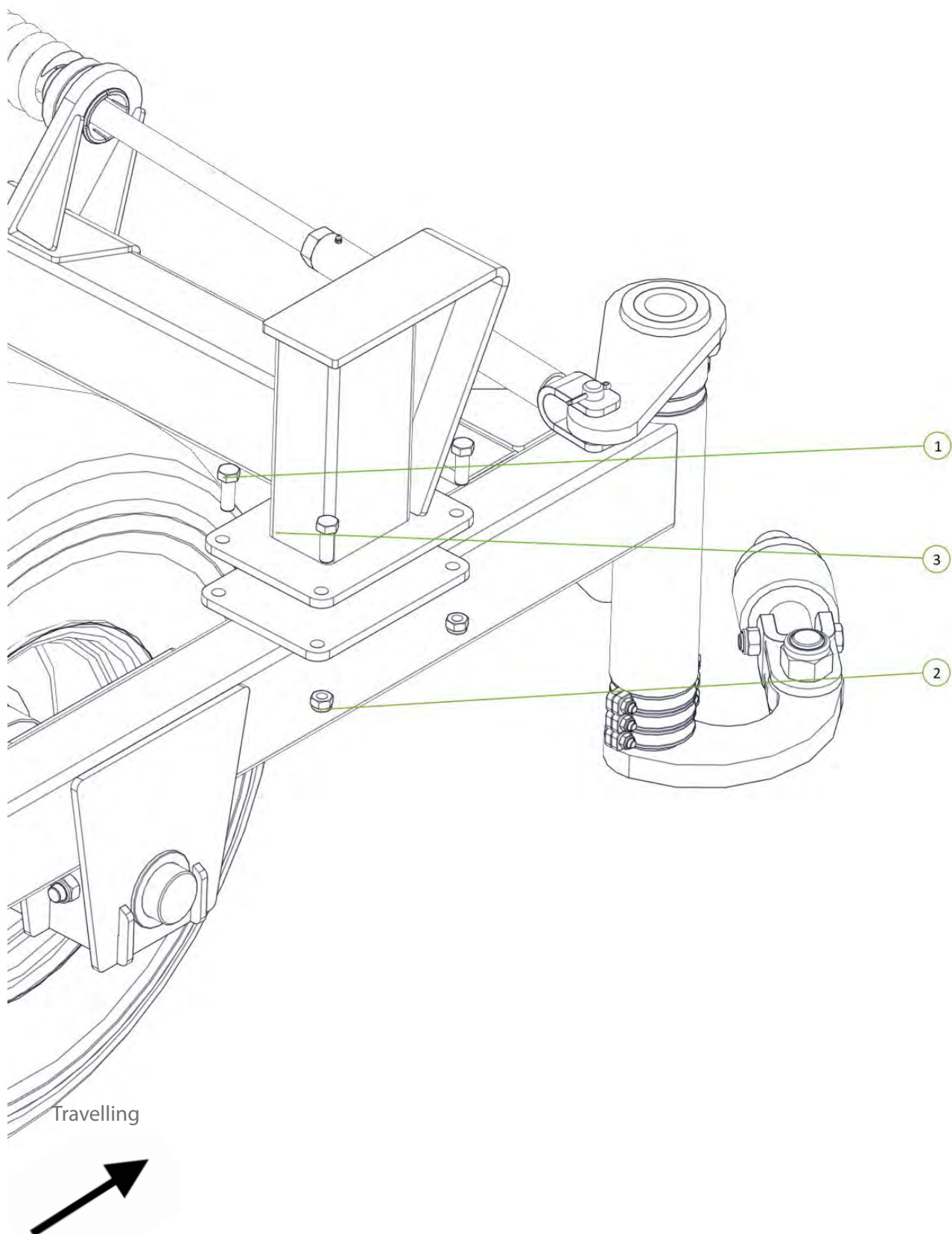
Item No.	Description	Qty	Number
1	Washer High Tensile 1 1/4"	1	0232-HT11-4
2	Chain Tension Adjustor	1	0802-PCHTA
3	Tensioner Cup - Male	1	0801-KE0805-3
4	Tensioner Cup-Female	1	0801-KE0805-4
5	20mm Compression Spring, Black	1	0801-XK9261S



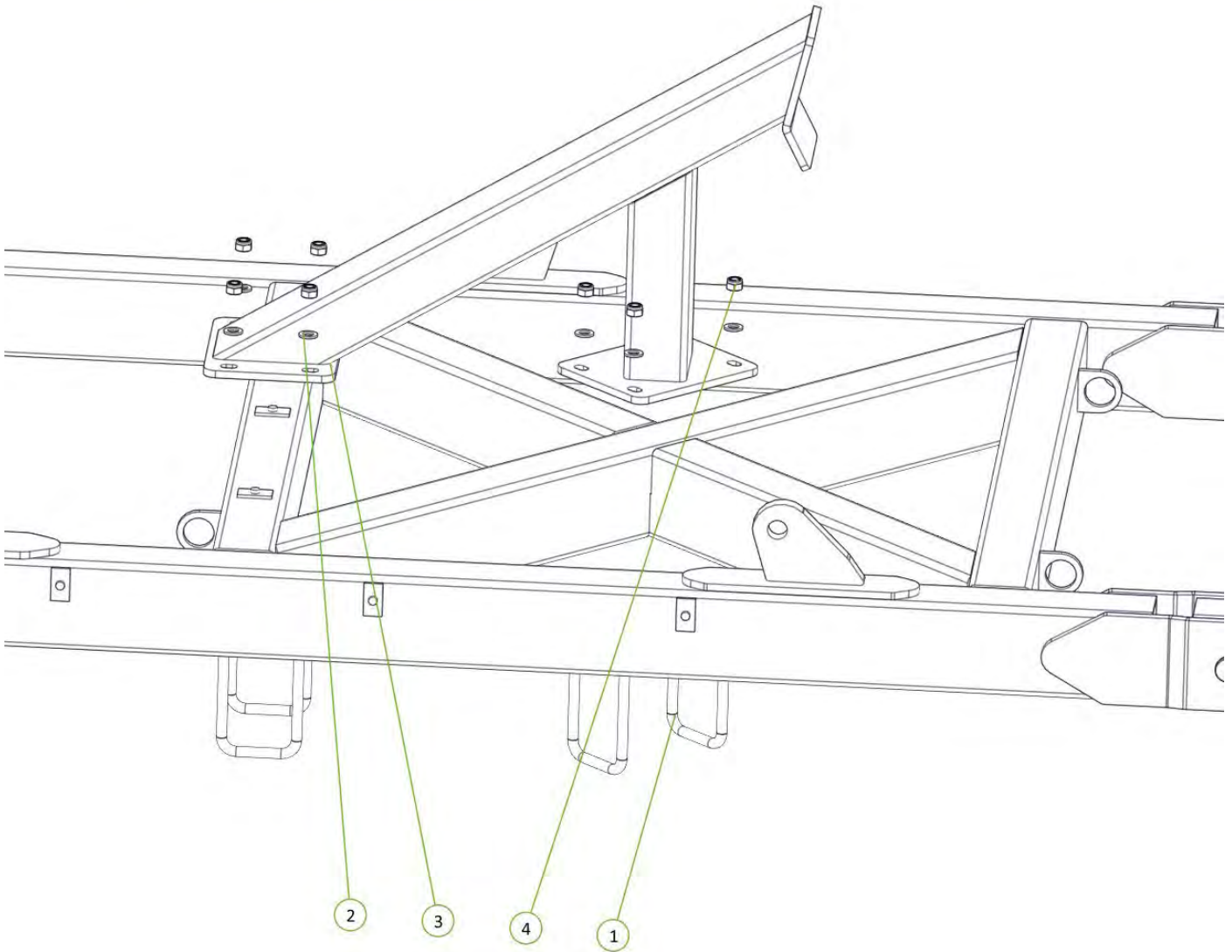
Travelling



Item No.	Description	Qty	Number
1	M16 x 45 grade 8.8 zp Bolt	4	0211-1645
2	Nyloc Nut M16	4	0221-NYL16
3	Outer Wing Post	1	1530-06P



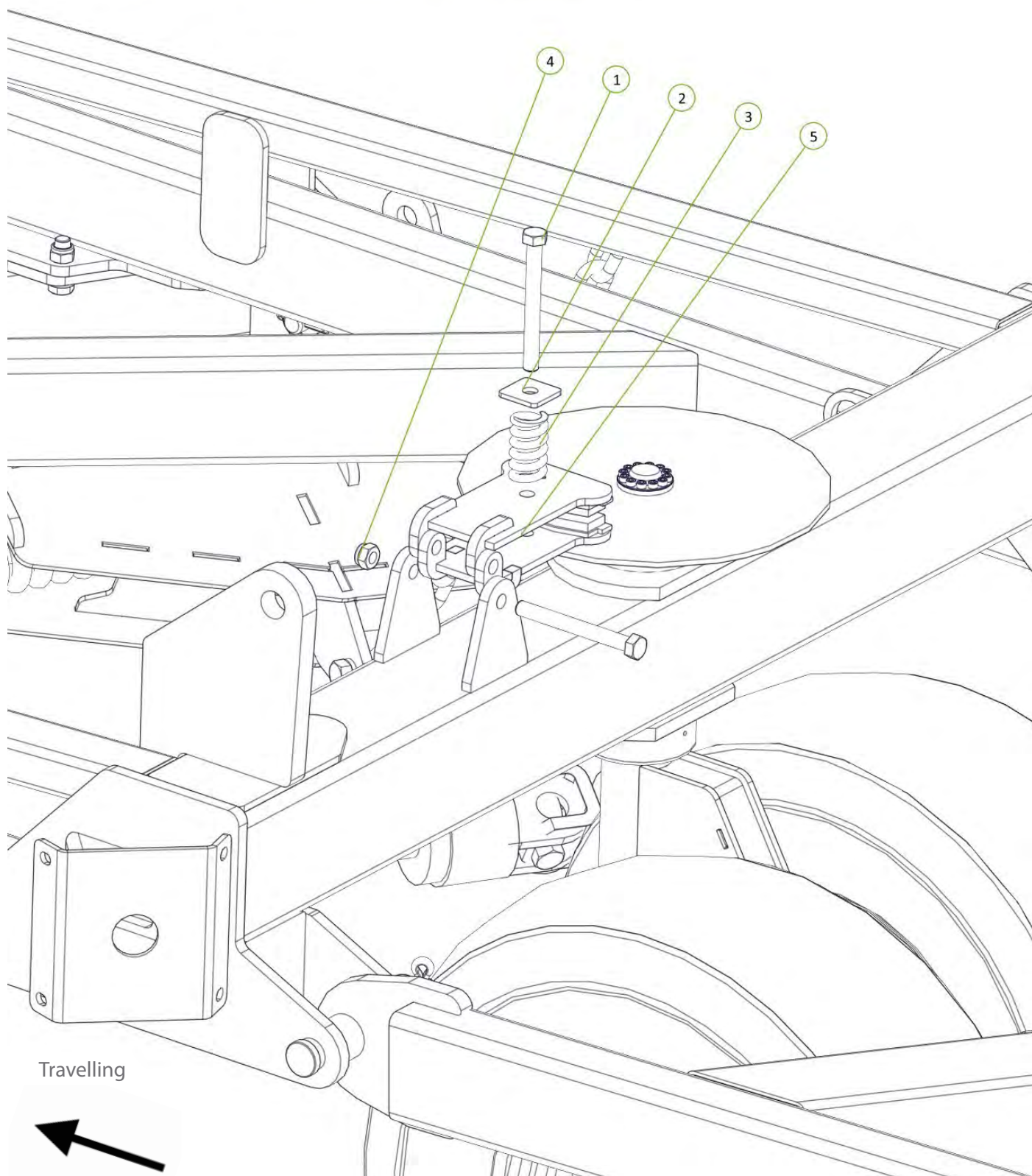
Item No.	Description	Qty	Number
1	U-Bolt M16 x 185 Deep x 104 Wide	4	0271-16185104
2	Washer Flat M16	8	0231-F16
3	Inner Wing post	1	1530-04P
4	Nyloc Nut M16	8	0221-NYL16

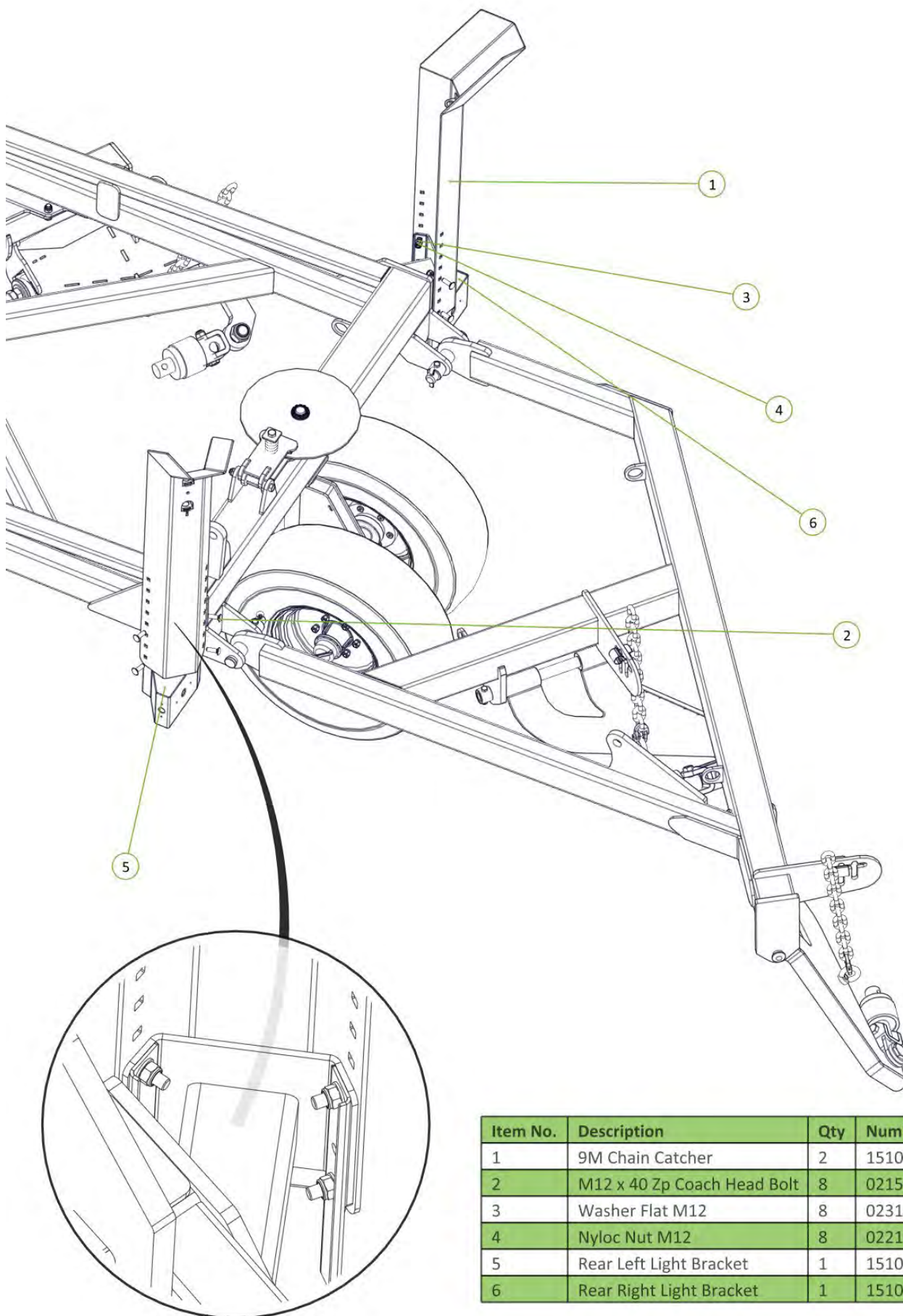


Travelling



Item No.	Description	Qty	Number
1	M16 x 150 grade 8.8 zp Bolt	2	0211-16150
2	Washer Square M16x50x5	1	0231-SQ16505
3	Brake Compression Spring	1	0801-KE009
4	Nyloc Nut M16	1	0221-NYL16
5	Jockey Wheel Brake Caliper	1	0810-12CAL

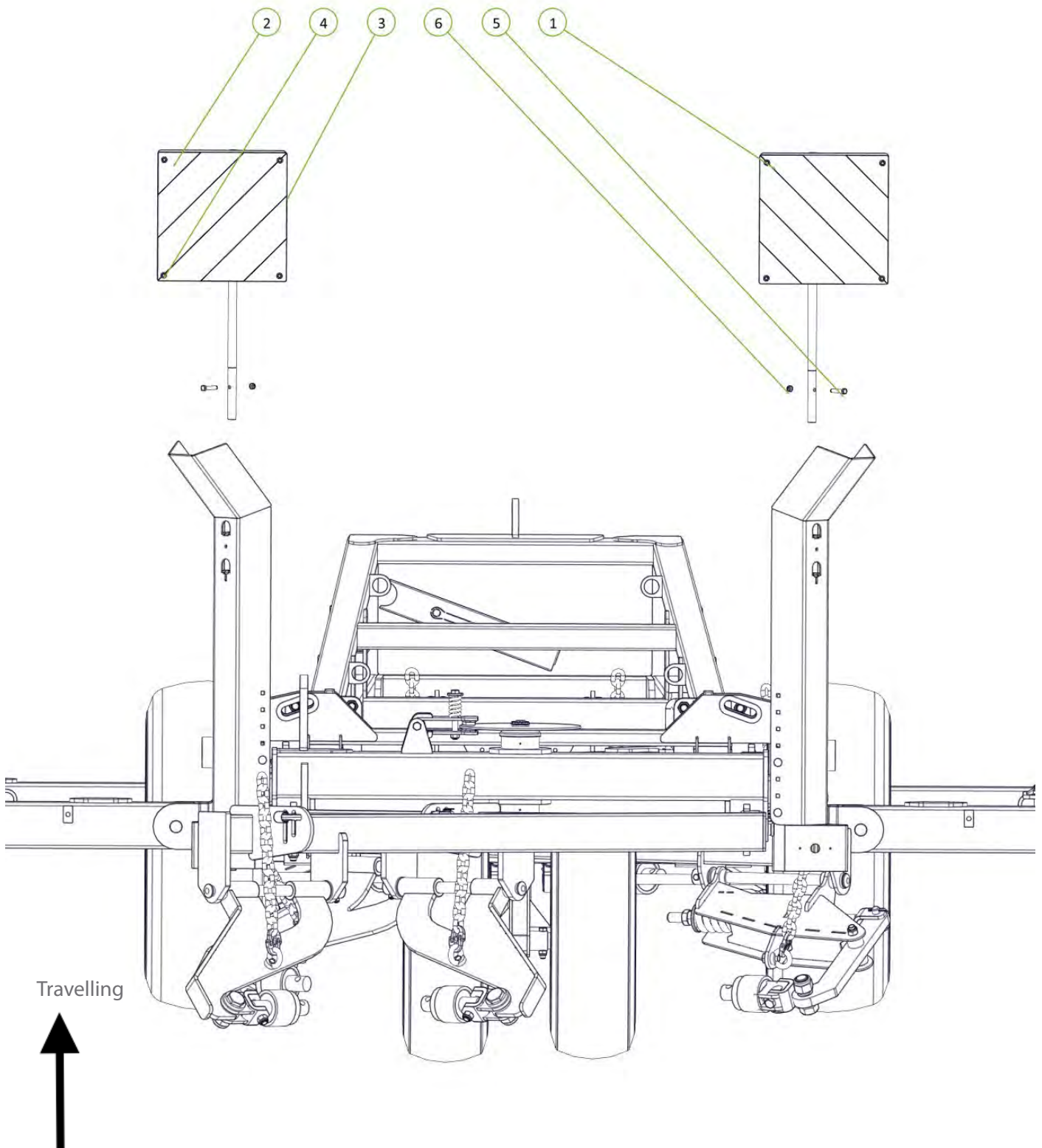




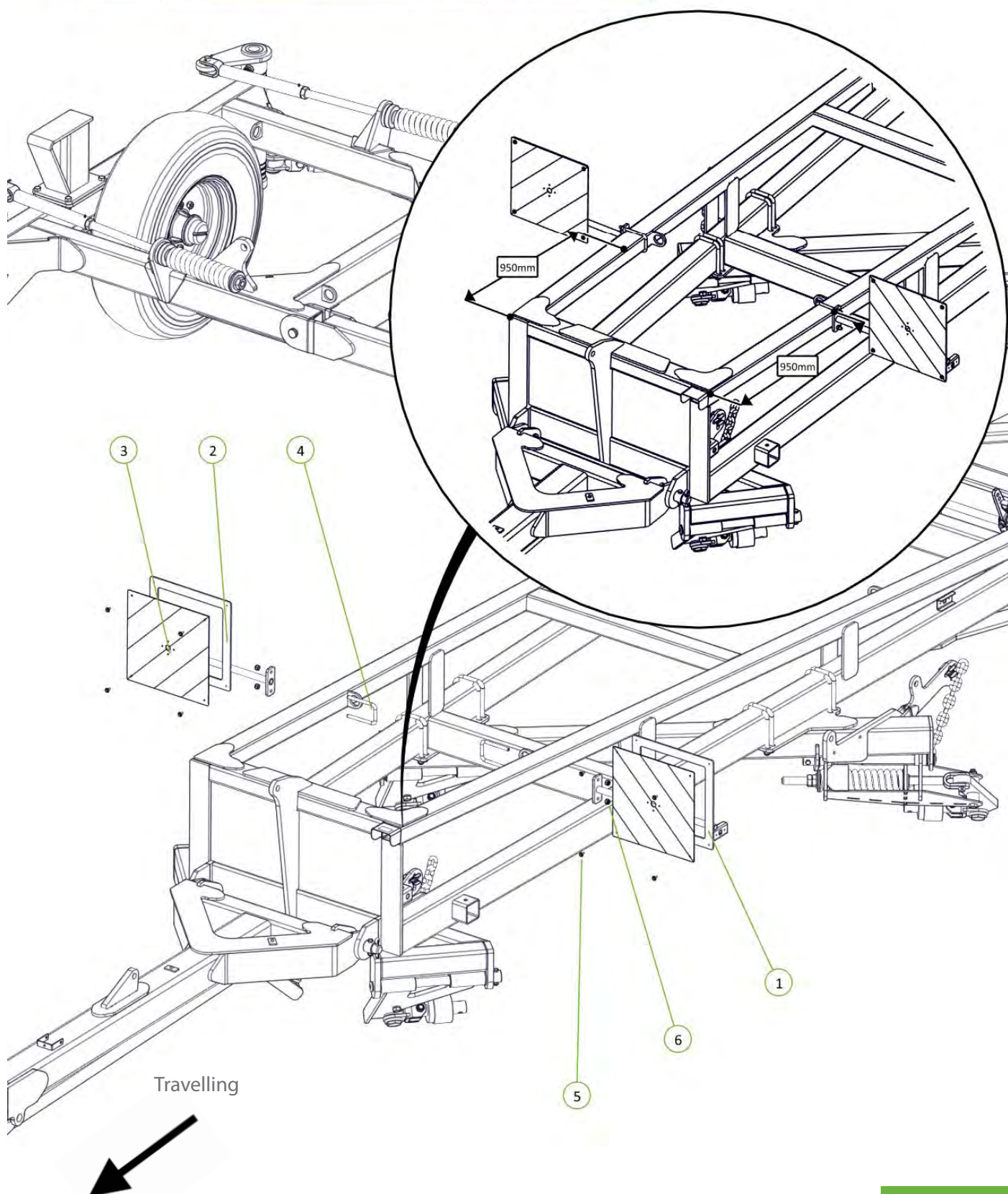
Item No.	Description	Qty	Number
1	9M Chain Catcher	2	1510-227
2	M12 x 40 Zp Coach Head Bolt	8	0215-CH1240
3	Washer Flat M12	8	0231-F12
4	Nyloc Nut M12	8	0221-NYL12
5	Rear Left Light Bracket	1	1510-225
6	Rear Right Light Bracket	1	1510-223

Travelling

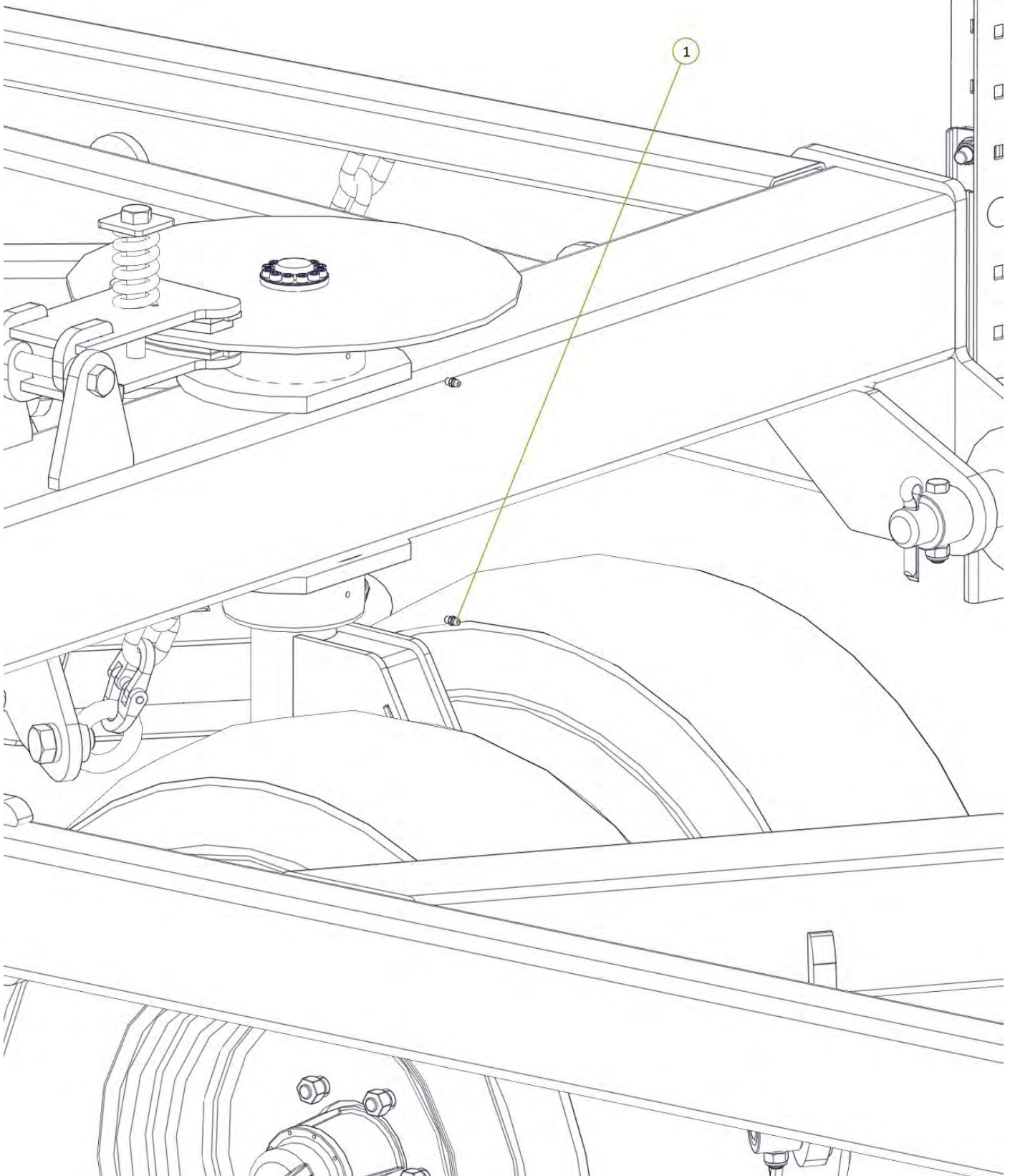
Item No.	Description	Qty	Number
1	Rear Right EUOS Sign Frame	1	1510-32
2	Rear Left EUOS Sign Frame	1	1510-31
3	EU Oversize sign	2	1501-EUOS2
4	M6 x 20mm Trilobe Screw	8	0211-M620MZPHTF
5	M10 x 55 grade 8.8 ZP Bolt	2	0211-1055
6	Nyloc Nut M10	2	0221-NYL10



Item No.	Description	Qty	Number
1	Front Left EUOS Sign Frame	1	1510-33
2	Front Right EUOS Sign Frame	1	1510-34
3	European Oversize Sign 3	2	1501-EUOS3
4	U-Bolt M12 x 135 Deep x 77 Wide	2	0271-1213577
5	M6 x 20 Trilobe self tapping ScREW	8	0211-M620MZPHTF
6	Nyloc Nut M12	4	0221-NYL12



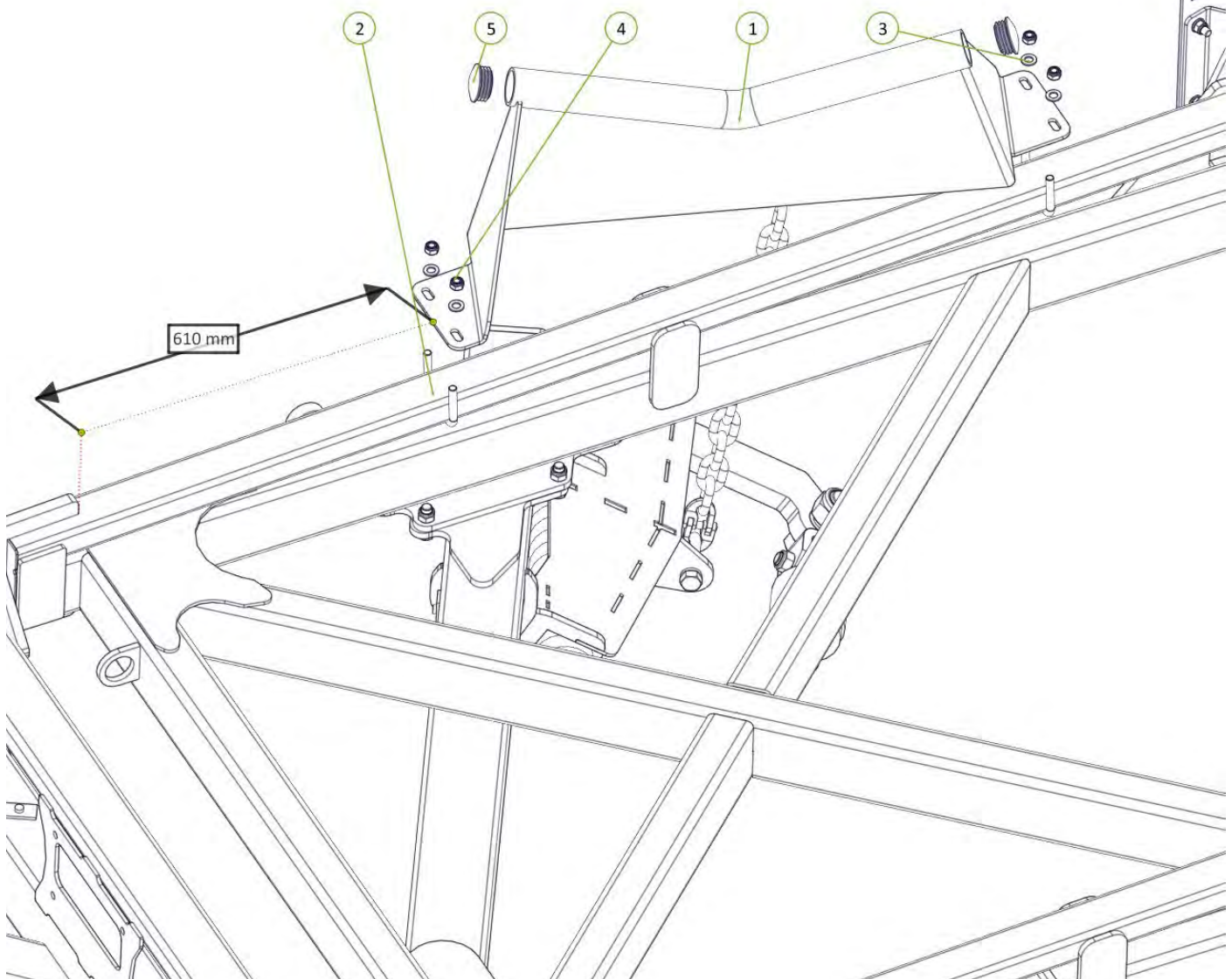
Item No.	Description	Qty	Number
1	Grease Nipple 1/4" UNF	2	0181-GN1-4



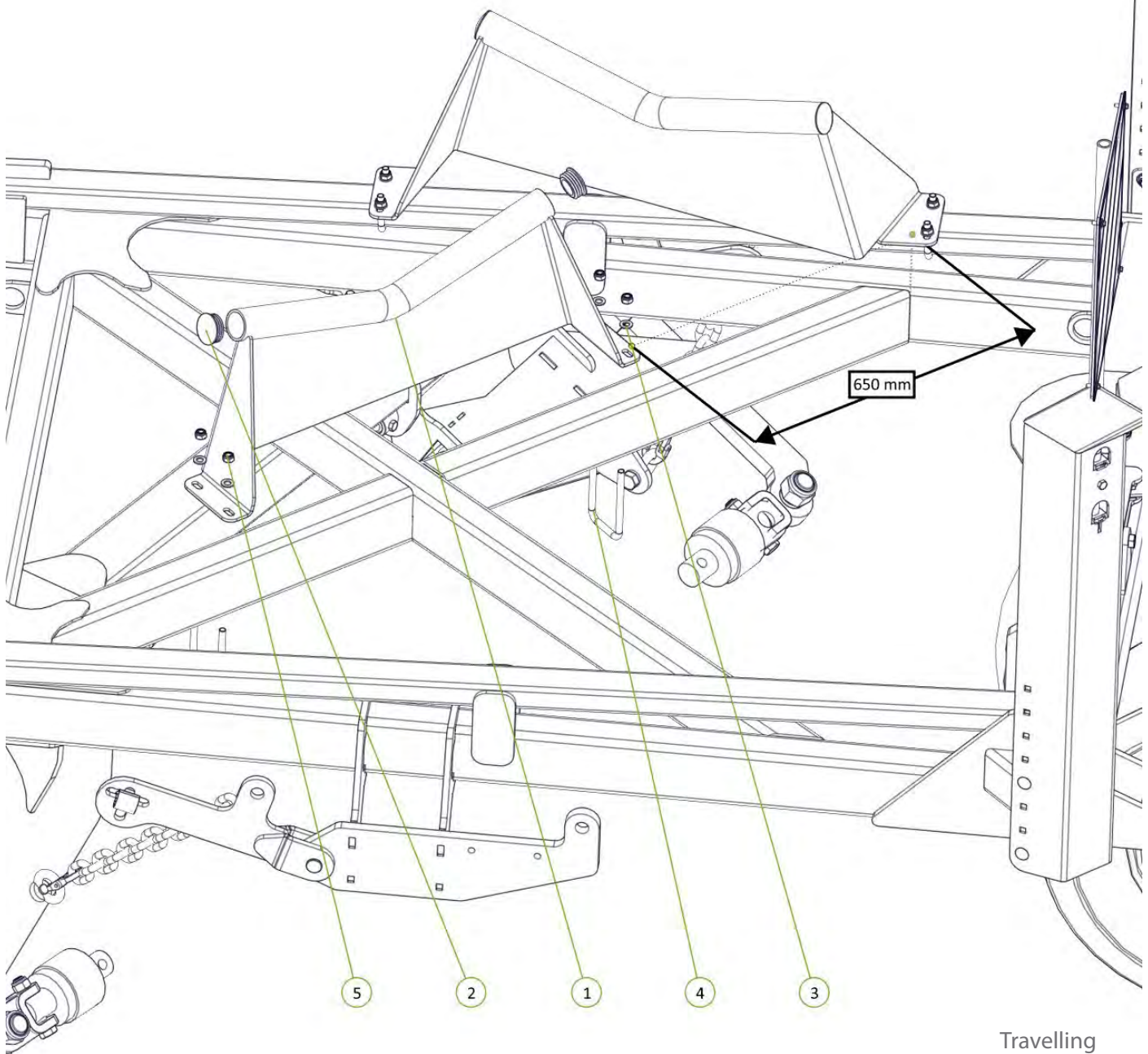
Travelling



Item No.	Description	Qty	Number
1	Left Hand M	1	0810-19L
2	U-Bolt M12 x 80 Deep x 77 Wide	2	0271-128077
3	Washer Flat M12	4	0231-F12
4	Nyloc Nut M12	4	0221-NYL12
5	Round Tube Insert 60.3 x 3.2-5mm	2	0264-RTRi-5584

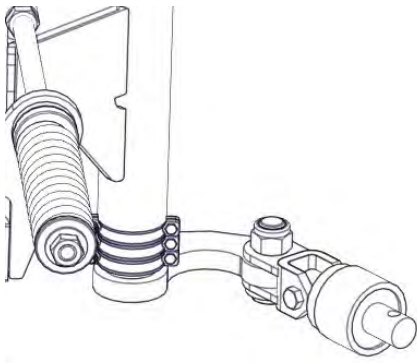


Item No.	Description	Qty	Number
1	Rear M	1	0810-19
2	Round Tube Insert 60.3 x 3.2-5mm	2	0264-RTRi-5584
3	Washer Flat M12	4	0231-F12
4	U-Bolt M12 x 155 Deep x 77 Wide	2	0271-1215577
5	Nyloc Nut M12	4	0221-NYL12

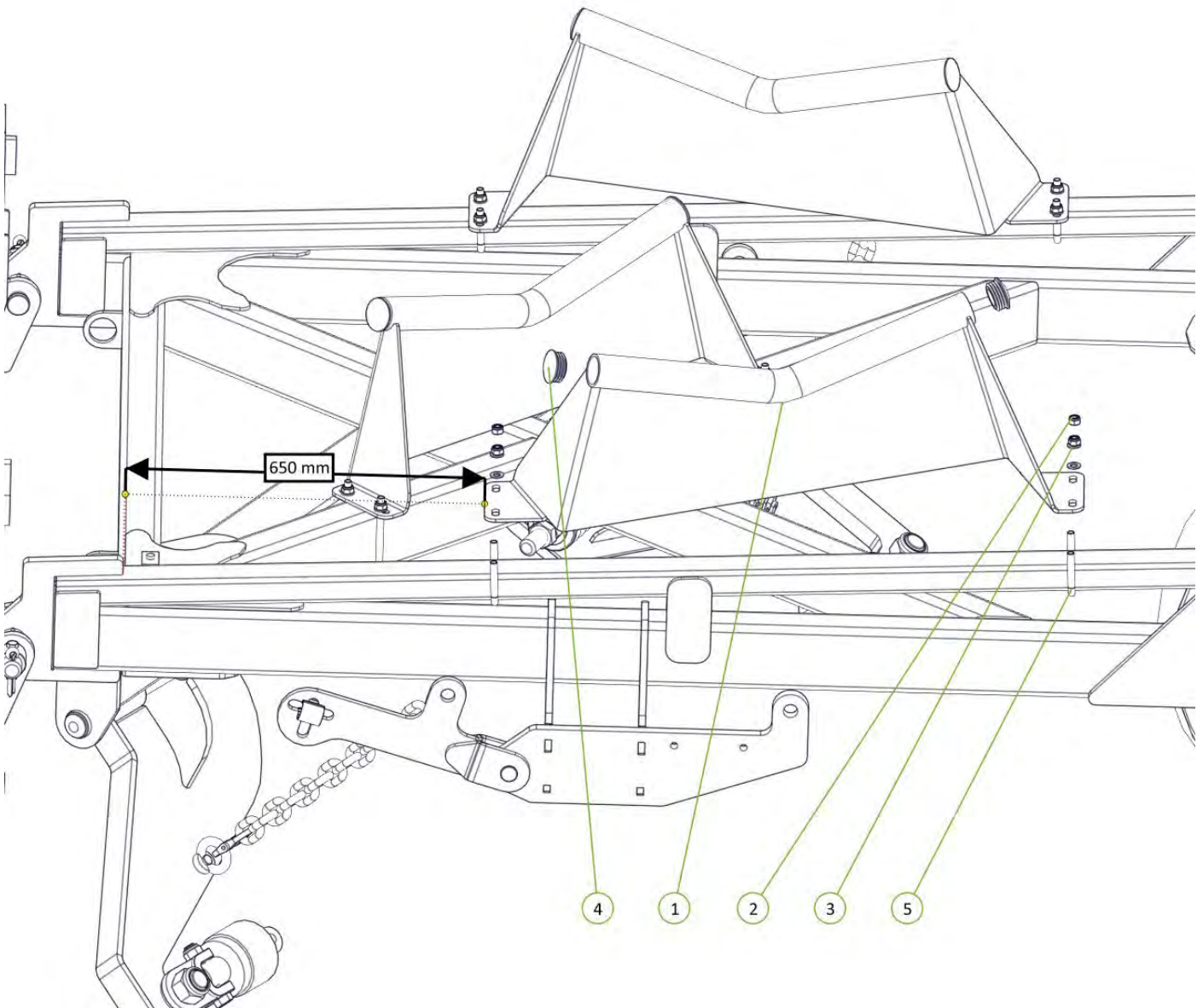


Travelling





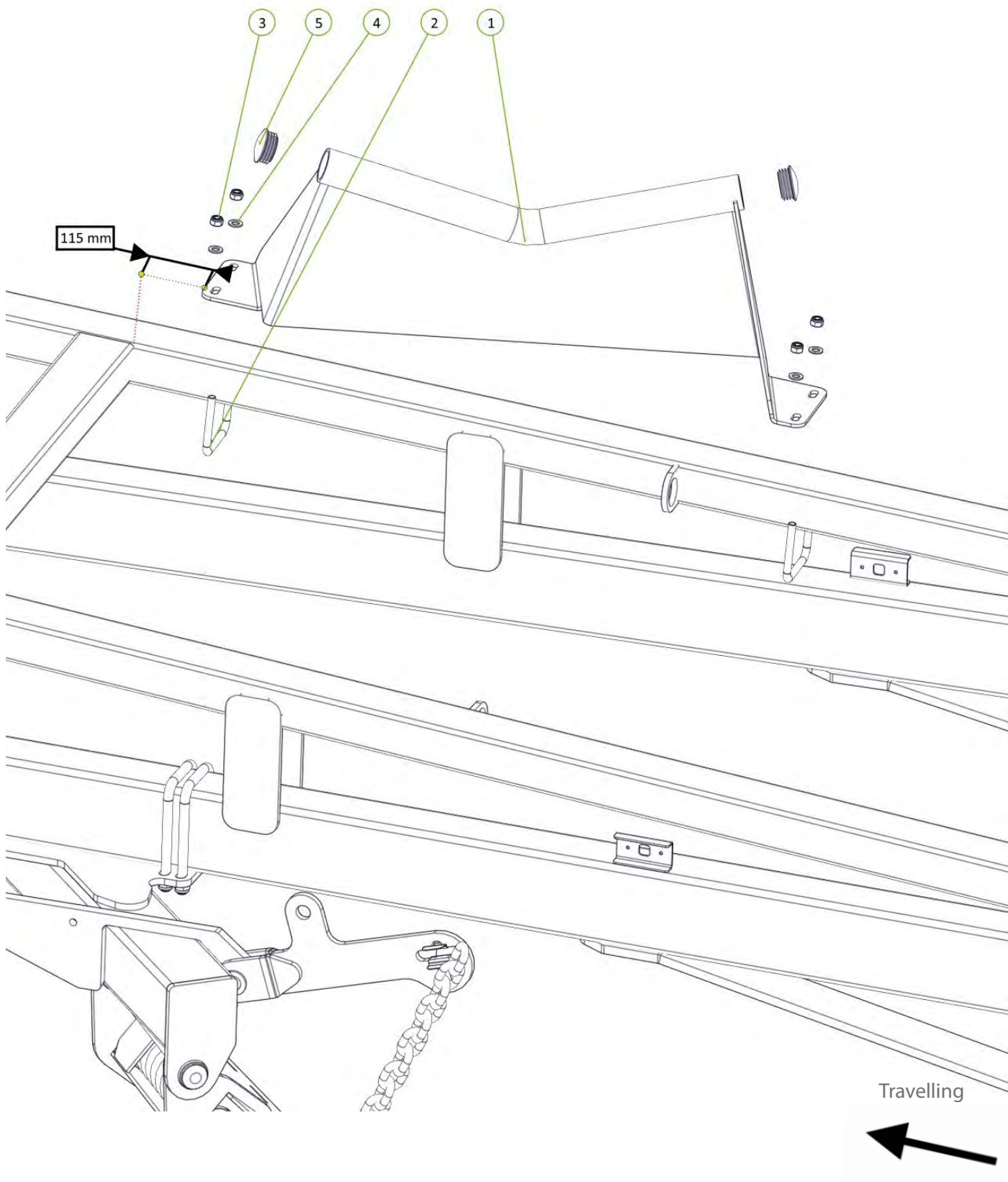
Item No.	Description	Qty	Number
1	Right Hand M	1	0810-18R
2	Nyloc Nut M12	4	0221-NYL12
3	Washer Flat M12	4	0231-F12
4	Round Tube Insert 60.3 x 3.2-5mm	2	0264-RTRi-5584
5	U-Bolt M12 x 80 Deep x 77 Wide	2	0271-128077



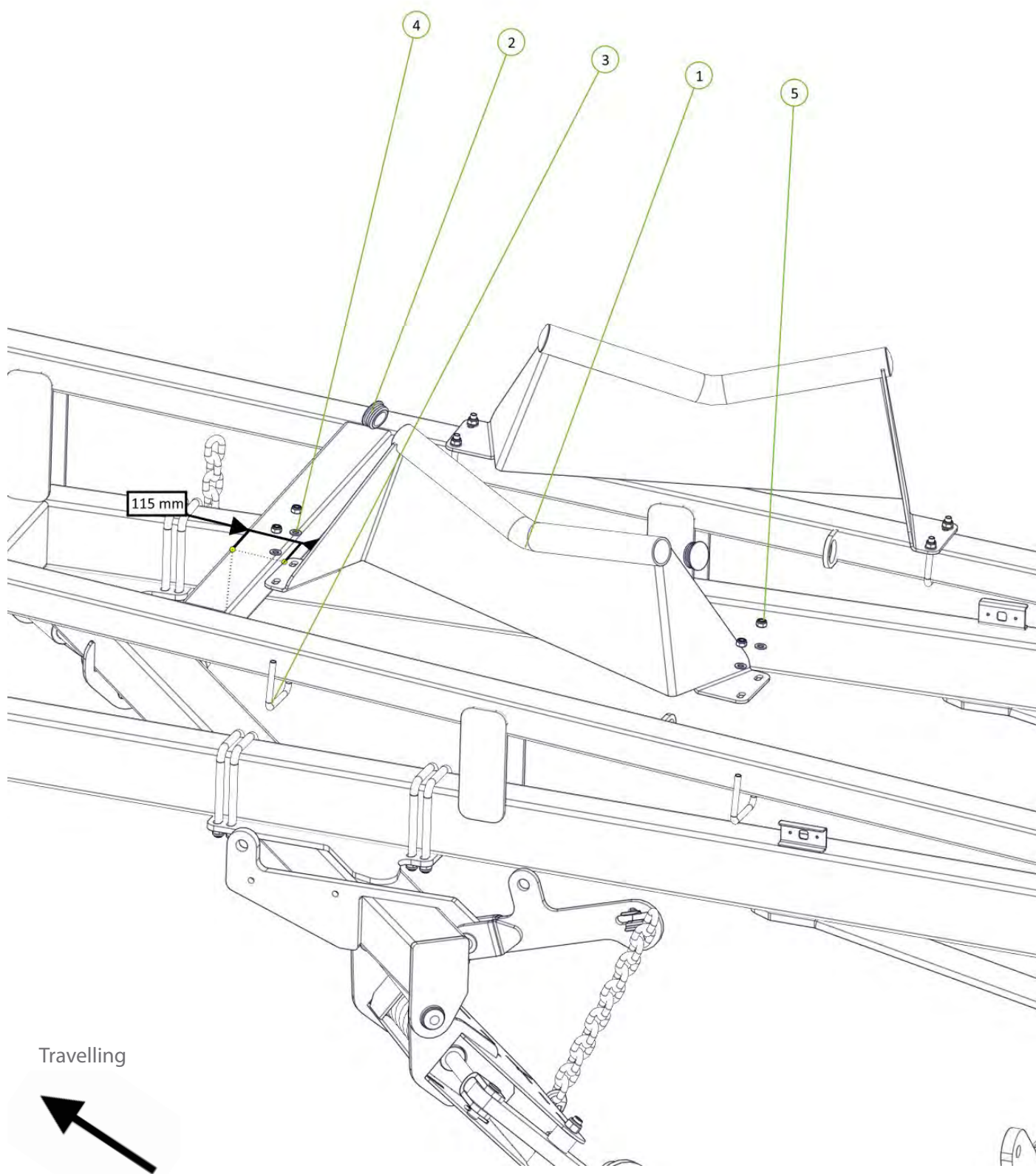
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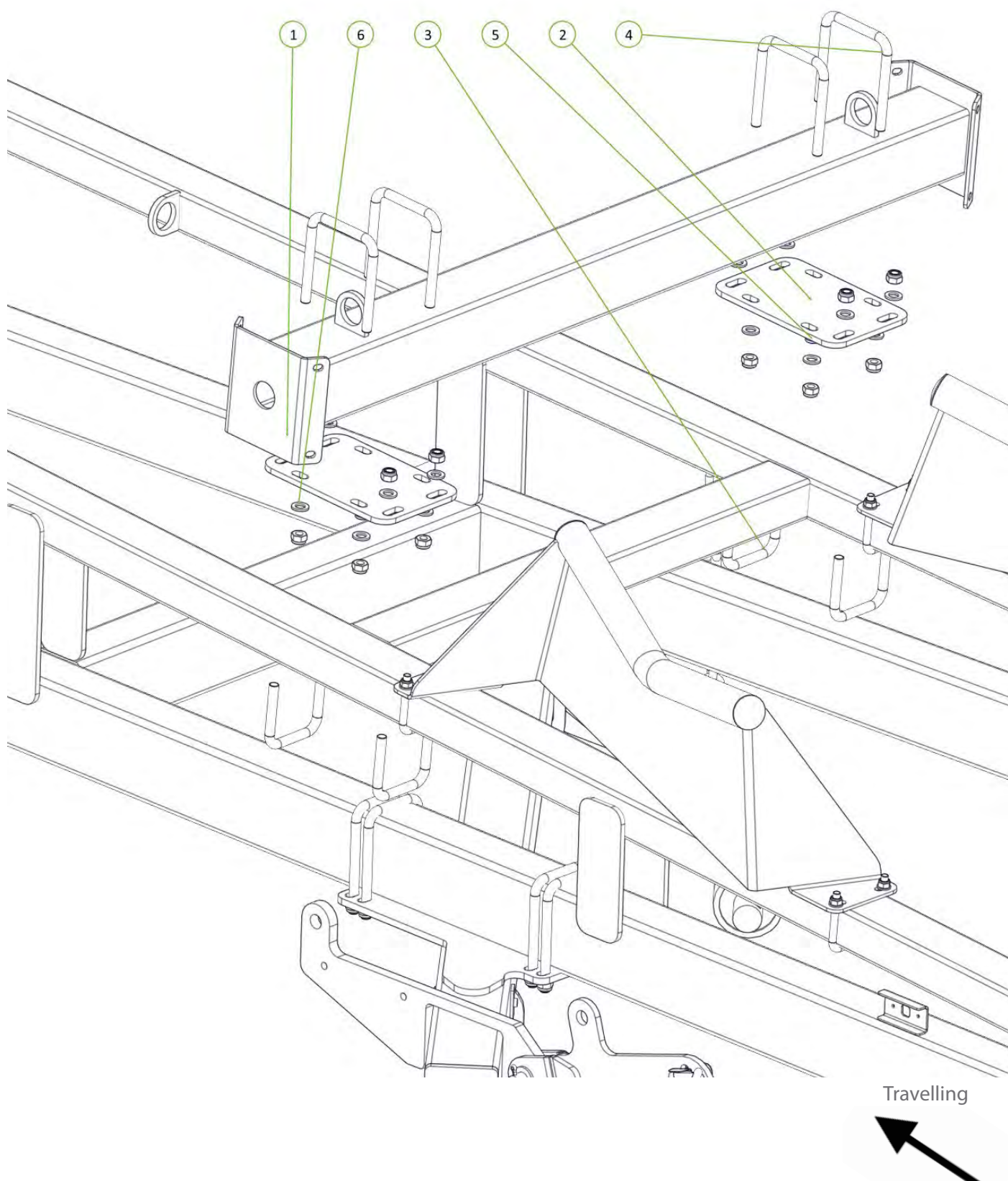
Item No.	Description	Qty	Number
1	Right Hand M	1	0810-18R
2	U-Bolt M12 x 105 Deep x 104 Wide	2	0271-12105104
3	Nyloc Nut M12	4	0221-NYL12
4	Washer Flat M12	4	0231-F12
5	Round Tube Insert 60.3 x 3.2-5mm	2	0264-RTRi-5584



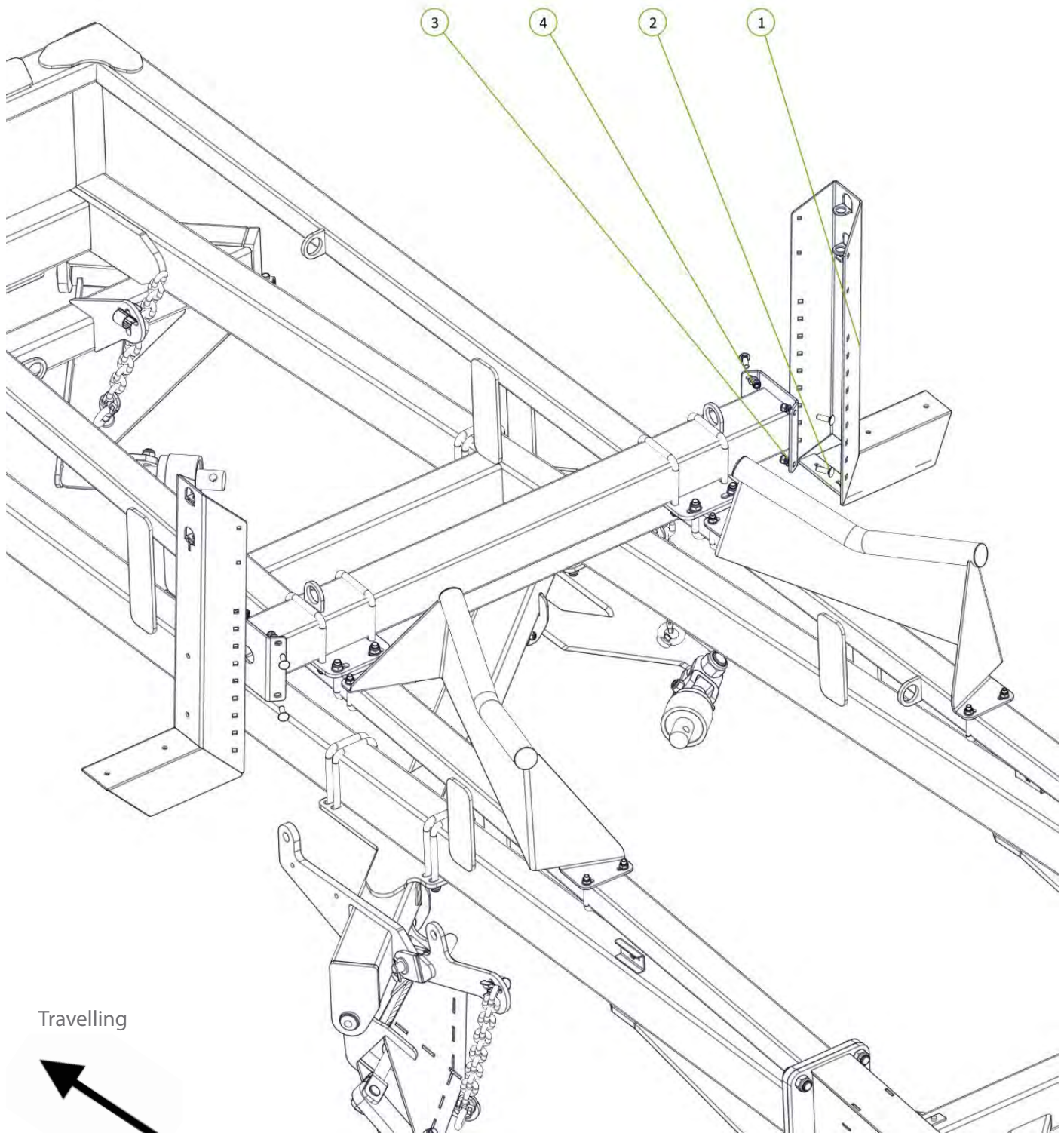
Item No.	Description	Qty	Number
1	Left Hand M	1	0810-19L
2	Round Tube Insert 60.3 x 3.2-5mm	2	0264-RTRi-5584
3	U-Bolt M12 x 105 Deep x 104 Wide	2	0271-12105104
4	Washer Flat M12	4	0231-F12
5	Nyloc Nut M12	4	0221-NYL12



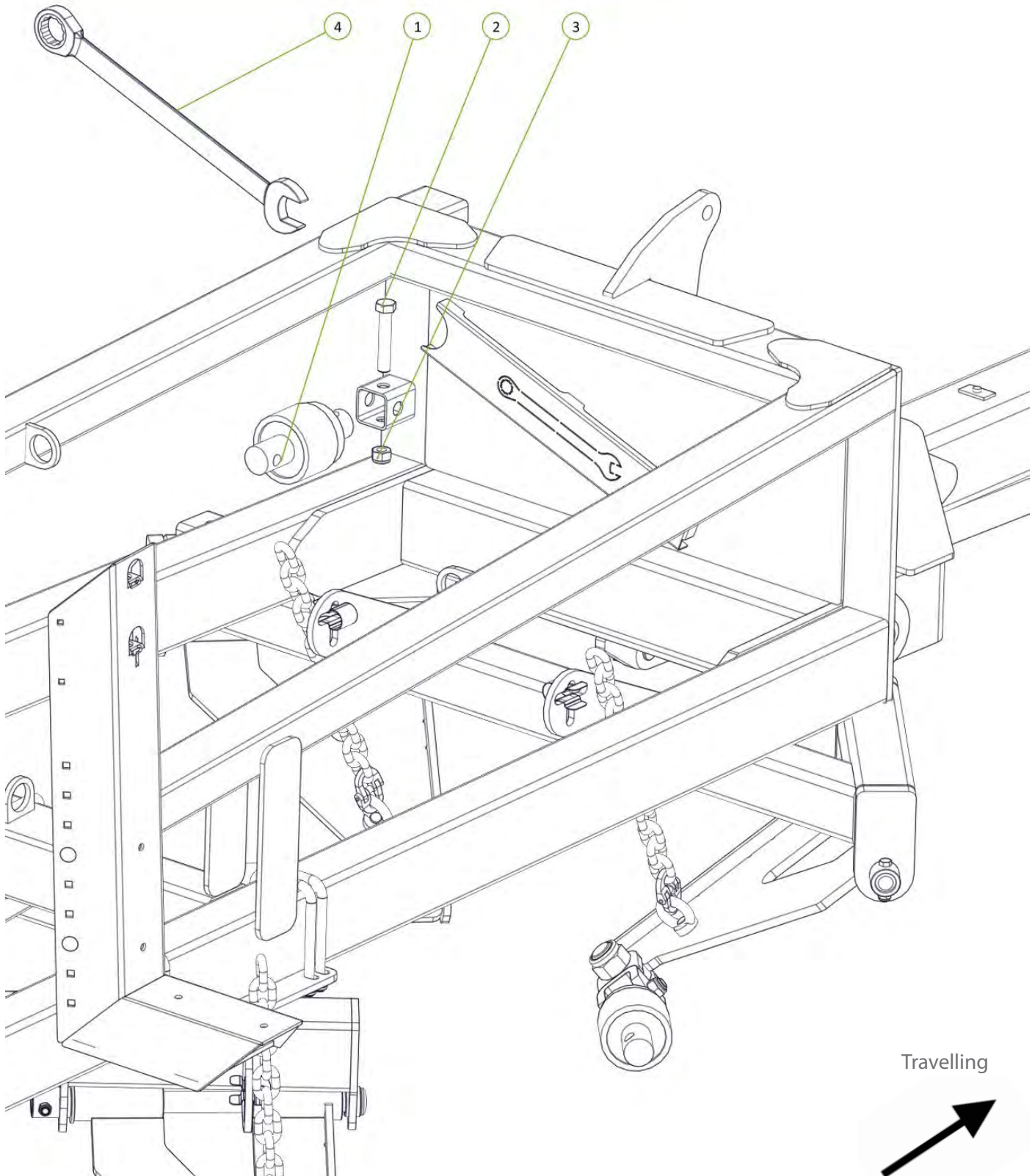
Item No.	Description	Qty	Number
1	9m & 12m Chain Carrier	1	1510-17-30
2	Chain Carrier Mount Plate	2	0800-139.1
3	U-Bolt M16 x 112 Deep x 104 Wide	4	0271-16112104
4	U-Bolt M16 x 160 Deep x 127 Wide	4	0271-16160127
5	Nyloc Nut M16	16	0221-NYL16
6	Washer Flat M16	16	0231-F16



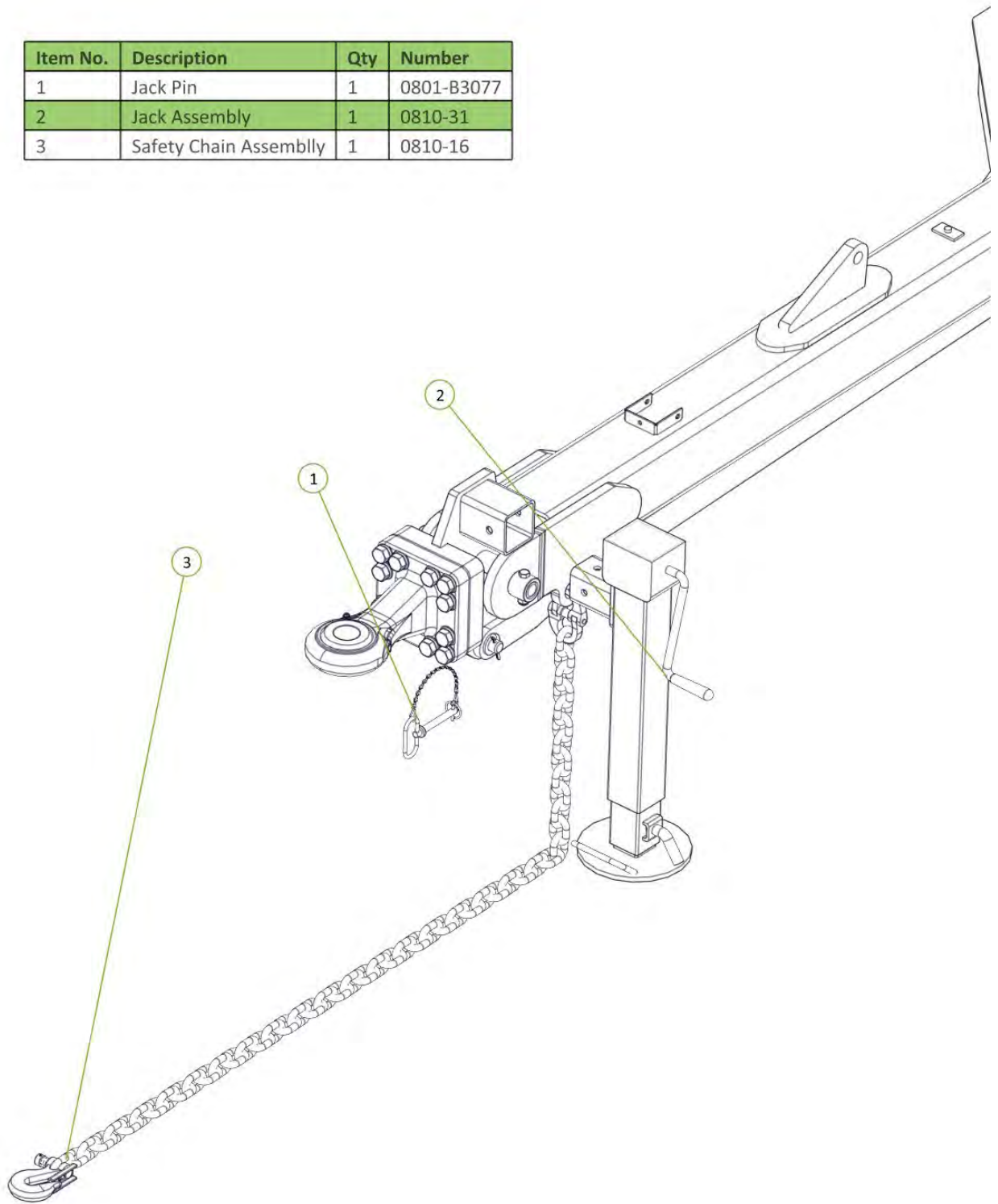
Item No.	Description	Qty	Number
1	Chain Carrier Bolt On End	2	0810-17L
2	M12 x 40 Zp Coach Head Bolt	8	0215-CH1240
3	Washer Flat M12	8	0231-F12
4	Nyloc Nut M12	8	0221-NYL12



Item No.	Description	Qty	Number
1	20mm Bolt Swivel Unit	1	0802-PCHB55
2	M20 x 110 grade 10.9 ZP Short Thread Bolt	1	0211-20110ST
3	Nyloc Nut M20	1	0221-NYL20
4	Gear Wrench 1 3/4"	1	0802-GW1 3-4



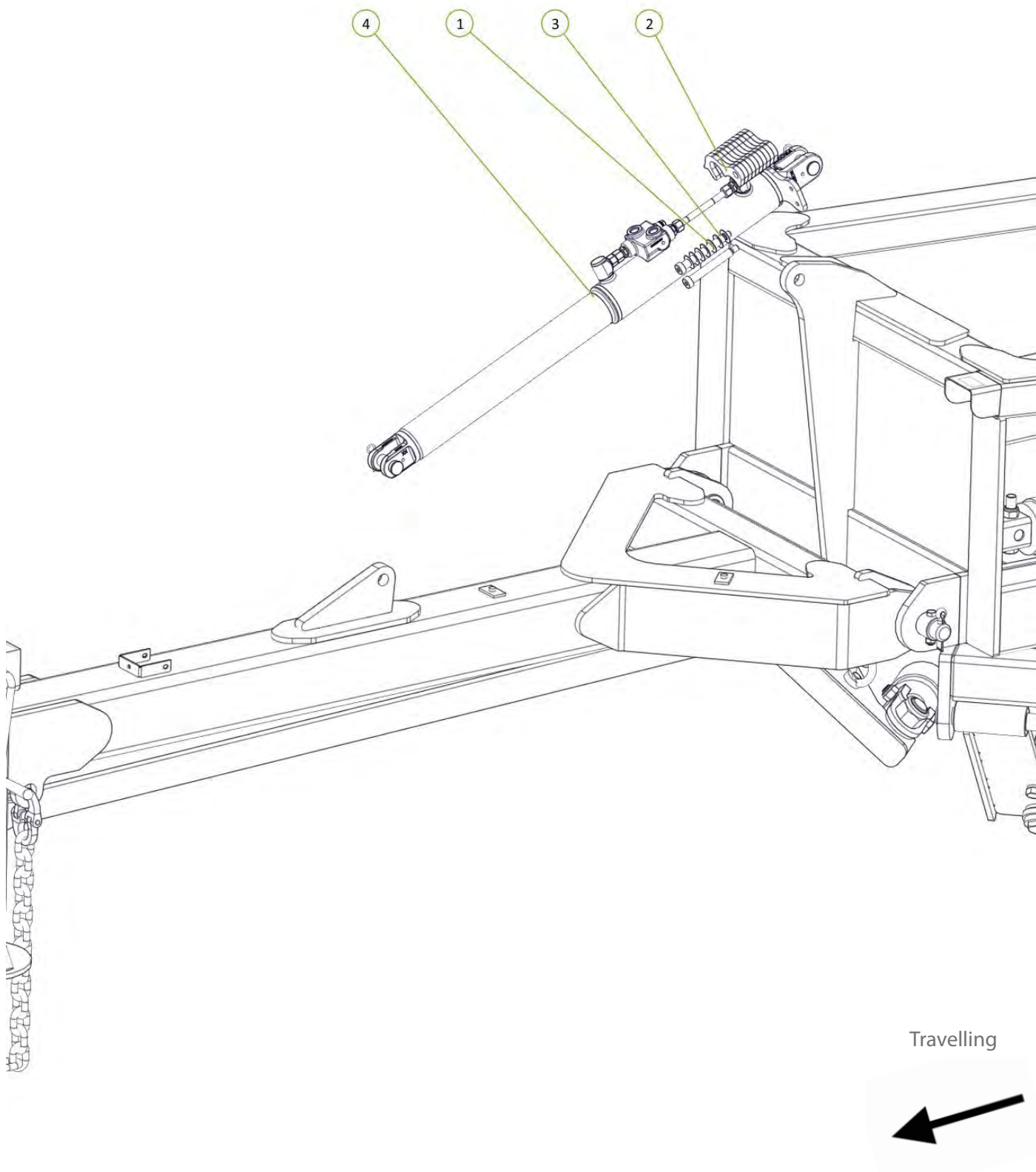
Item No.	Description	Qty	Number
1	Jack Pin	1	0801-B3077
2	Jack Assembly	1	0810-31
3	Safety Chain Assembly	1	0810-16



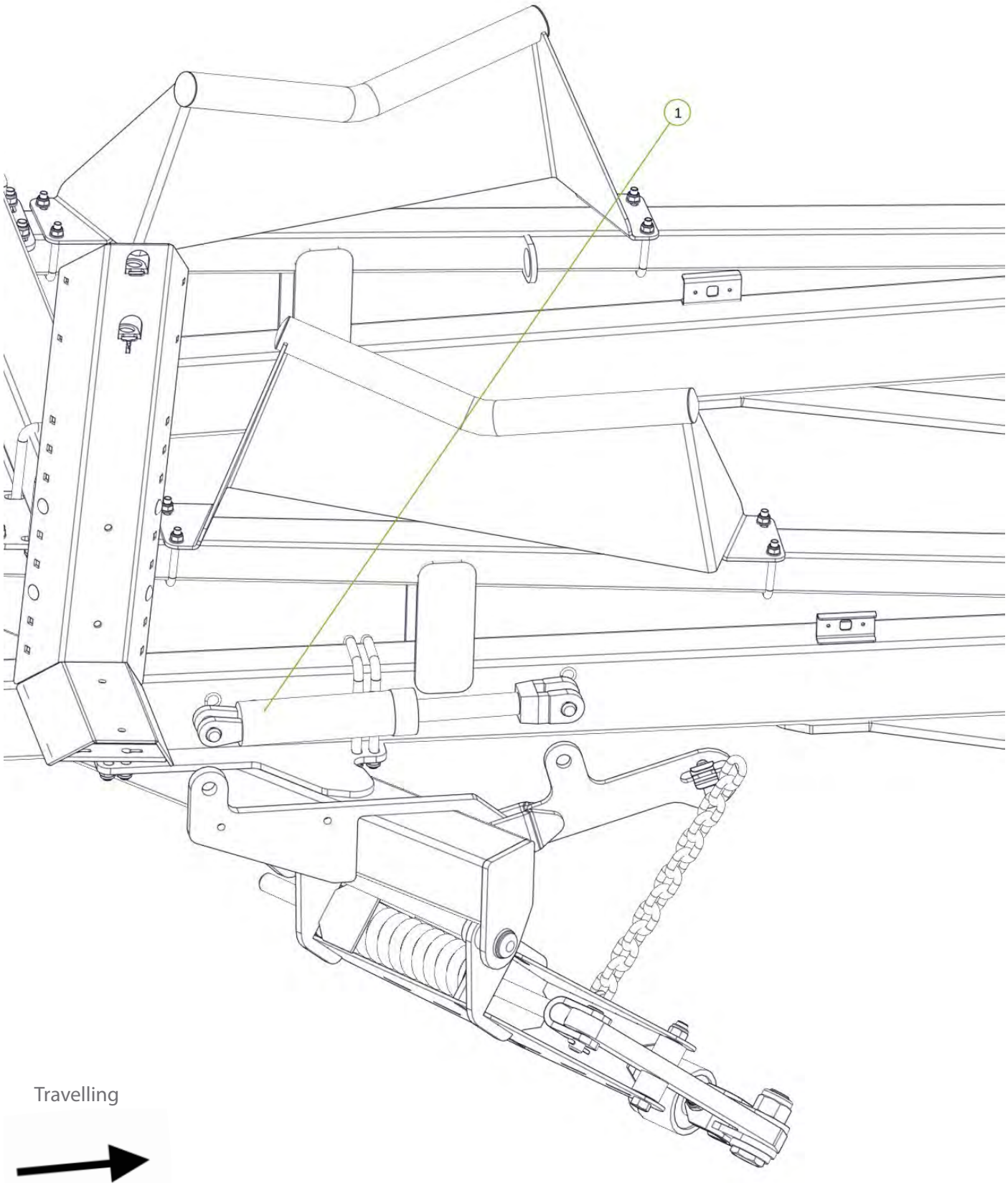
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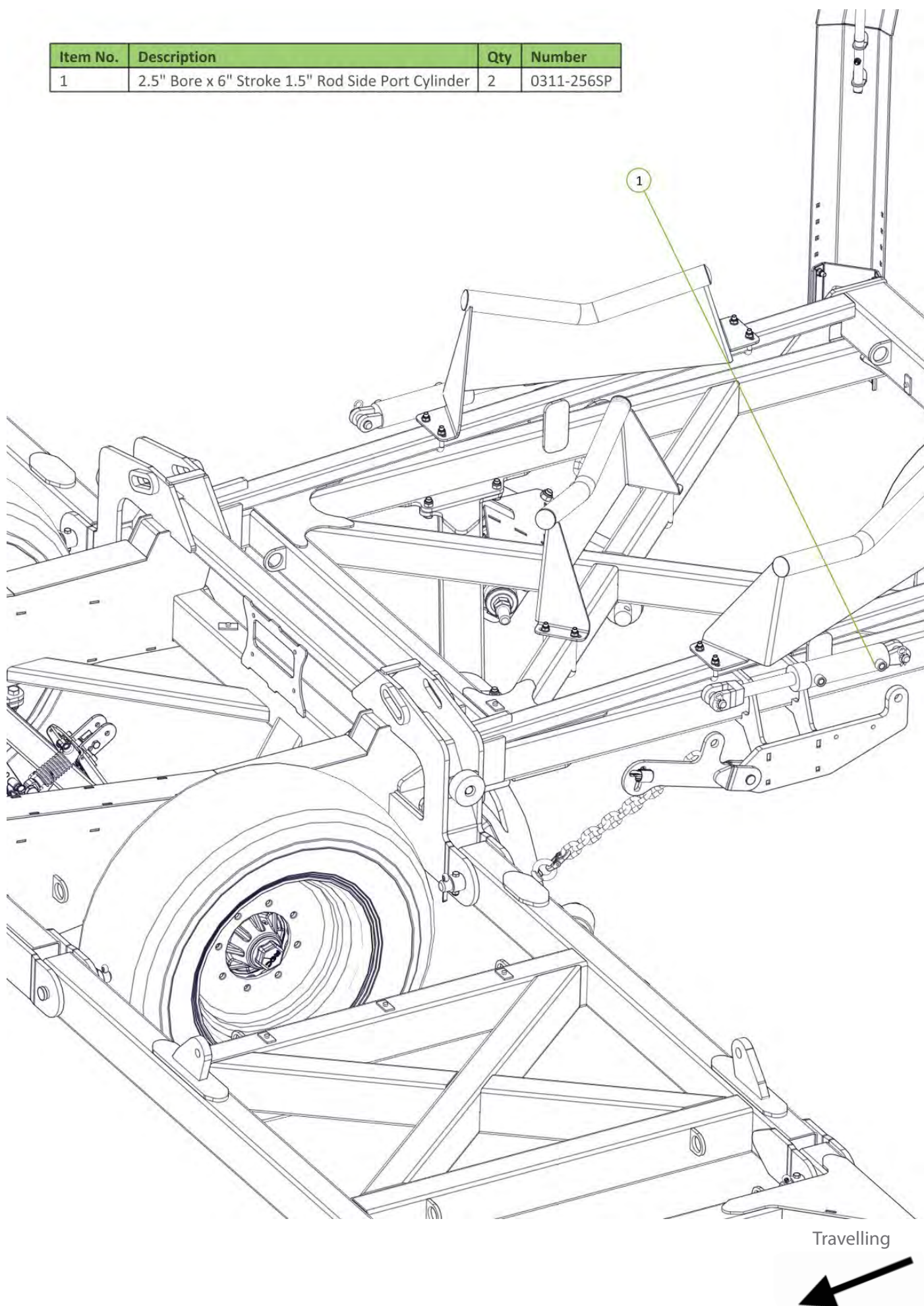
Item No.	Description	Qty	Number
1	Compression Cup Washer	7	0231-SPRINGCUP
2	Cylinder Depth Stop Plate	10	0800-278
3	Shoulder Screw M12 x 16 x 110	2	0211-12110SHSCREW
4	3" Bore x 12" Stroke Extended Cylinder	1	0313-312EXT



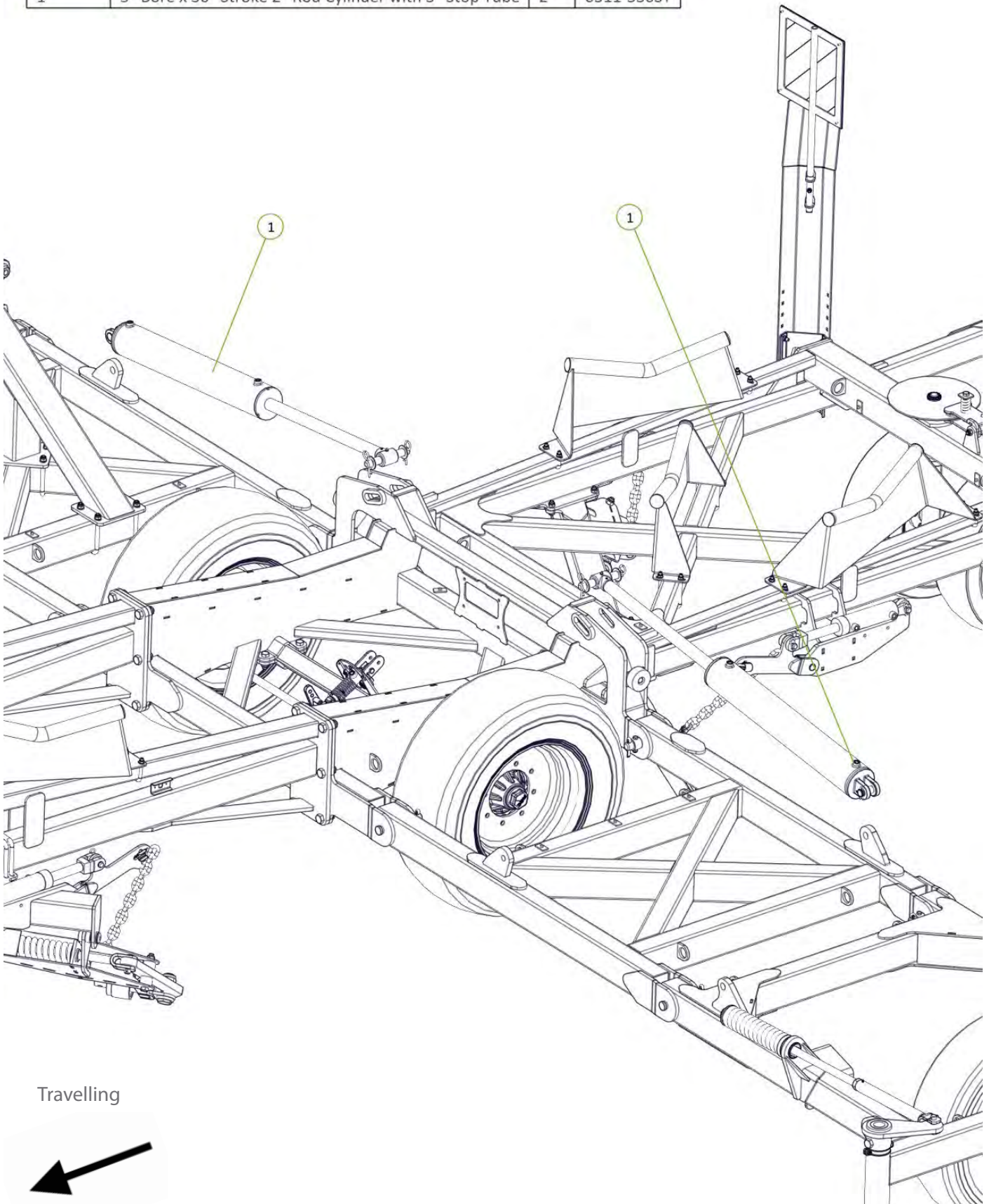
Item No.	Description	Qty	Number
1	2.5" Bore x 6" Stroke 1.5" Rod Side Port Cylinder	1	0311-256SP



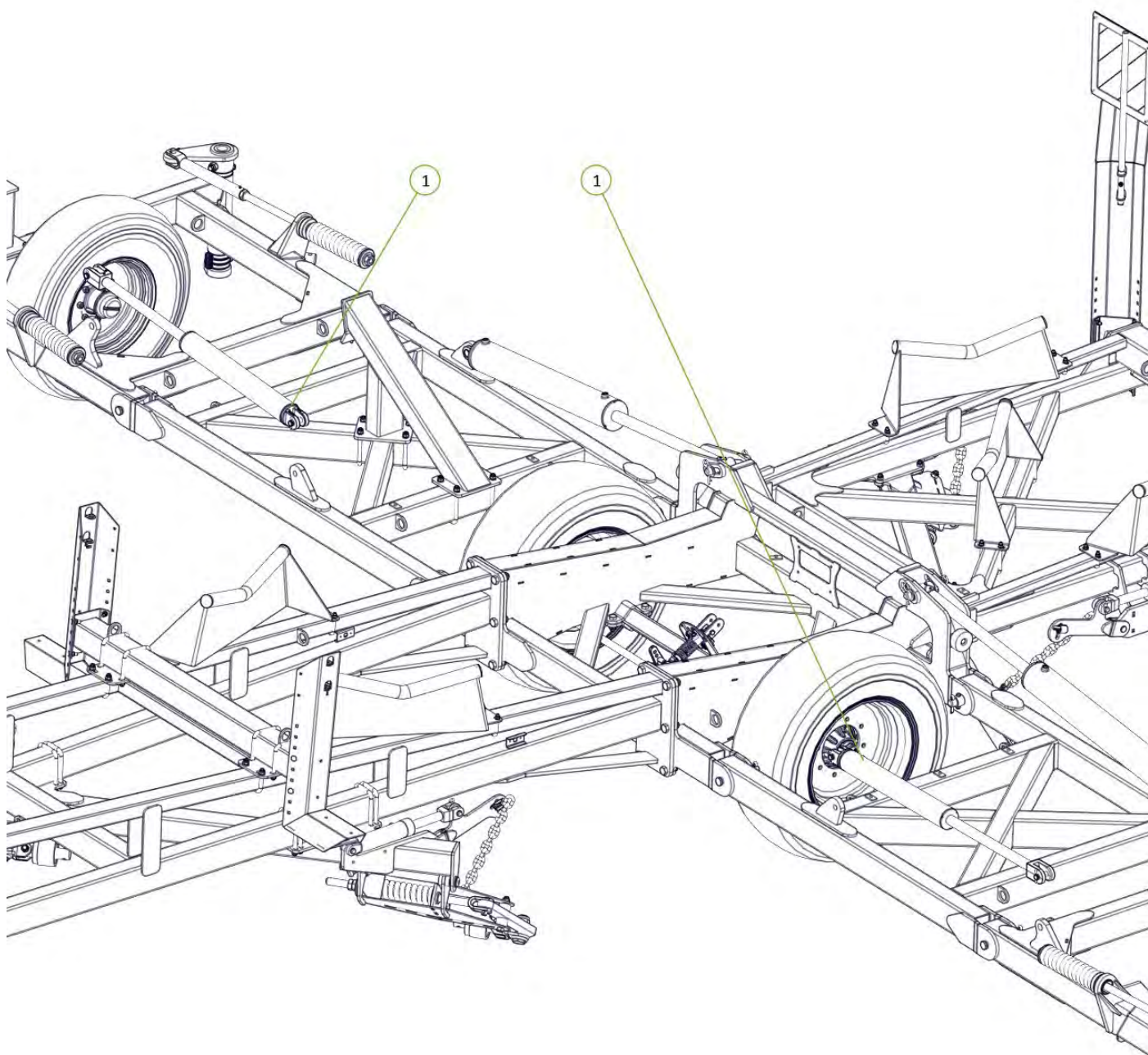
Item No.	Description	Qty	Number
1	2.5" Bore x 6" Stroke 1.5" Rod Side Port Cylinder	2	0311-256SP



Item No.	Description	Qty	Number
1	5" Bore x 30" Stroke 2" Rod Cylinder with 3" Stop Tube	2	0311-530ST



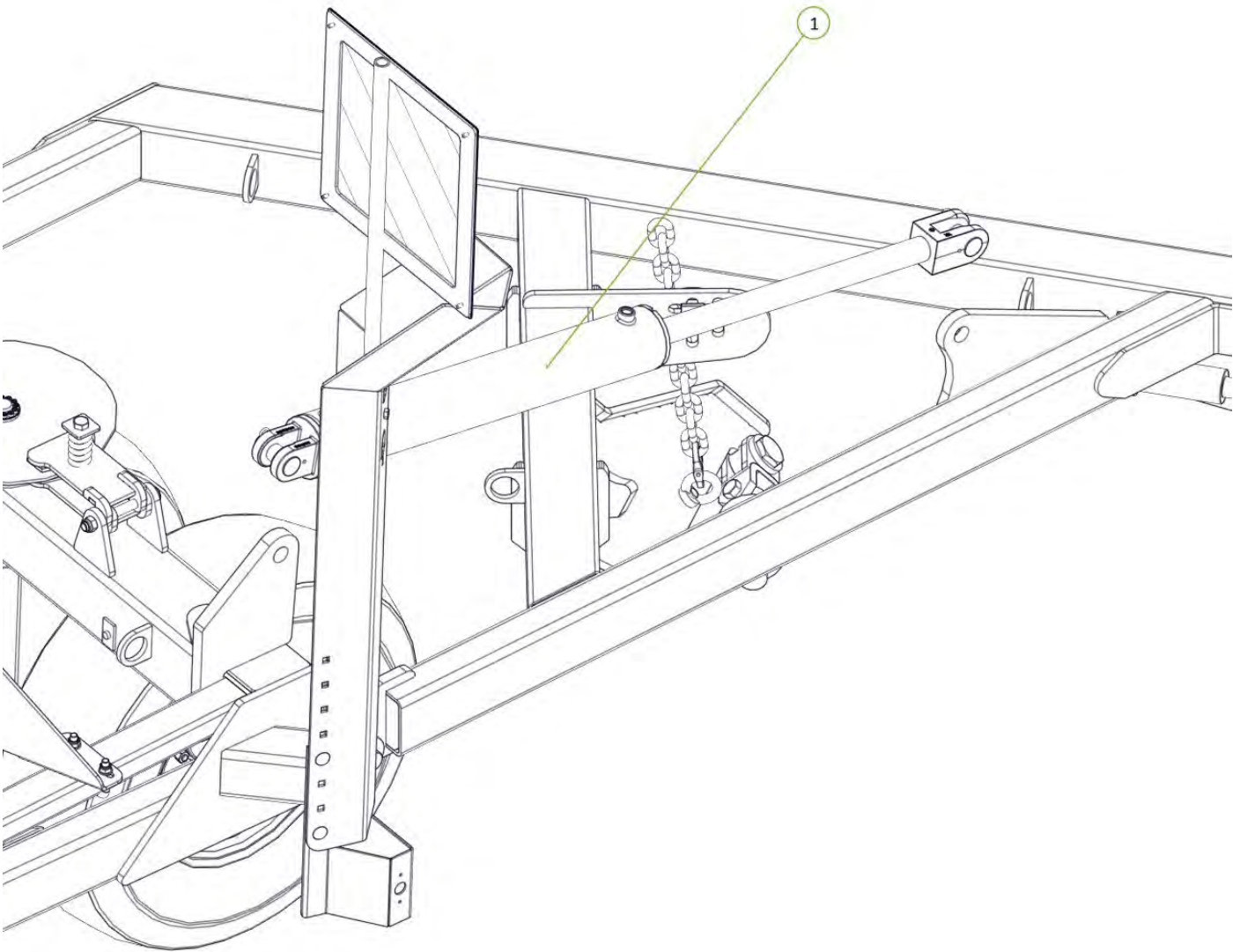
Item No.	Description	Qty	Number
1	3.5" x 24" Side Port Hydraulic Cylinder Barrel	2	0311-3524SP



Travelling



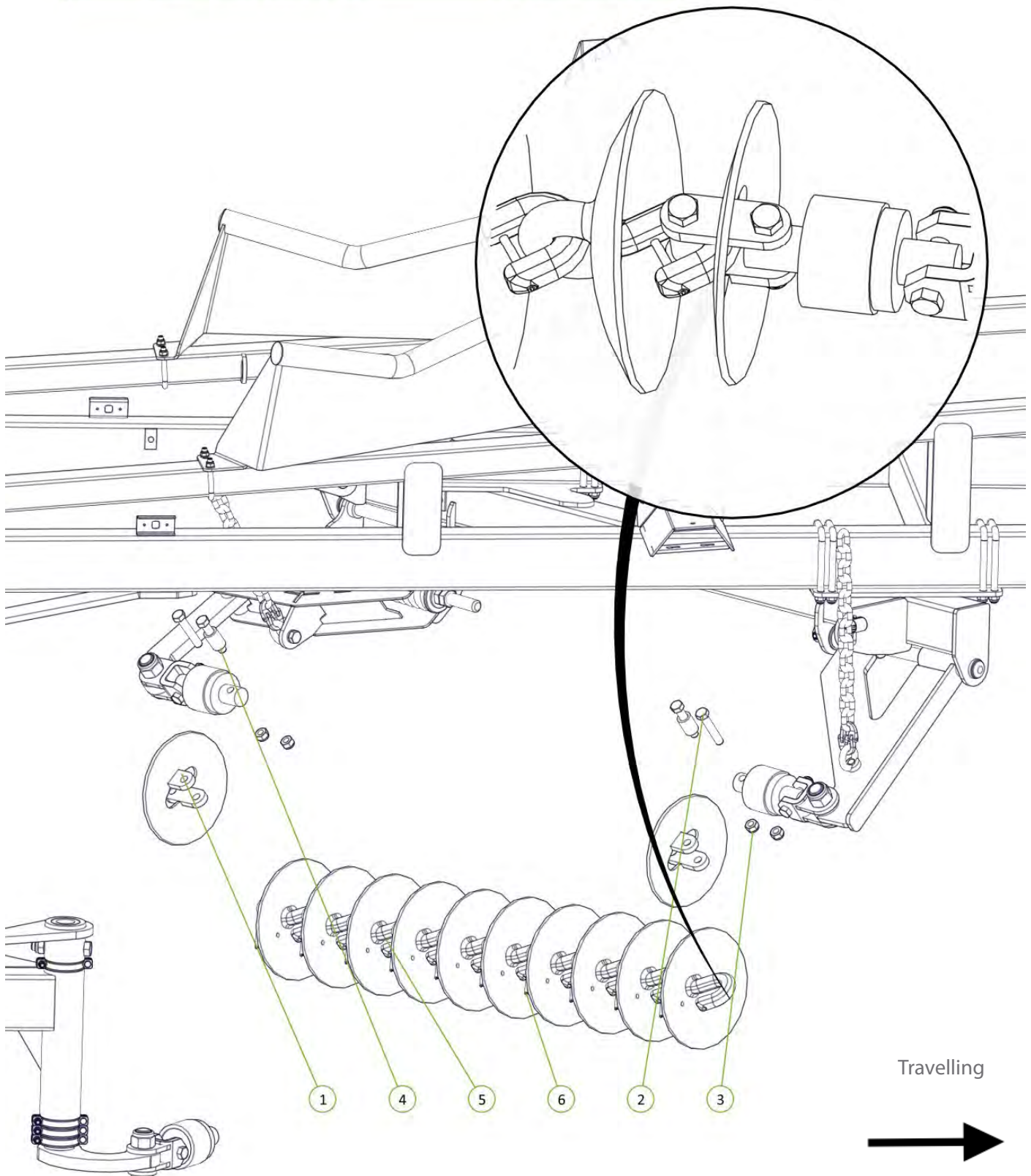
Item No.	Description	Qty	Number
1	4" Bore x 24" Stroke 1.75" Rod Cylinder	1	0311-424



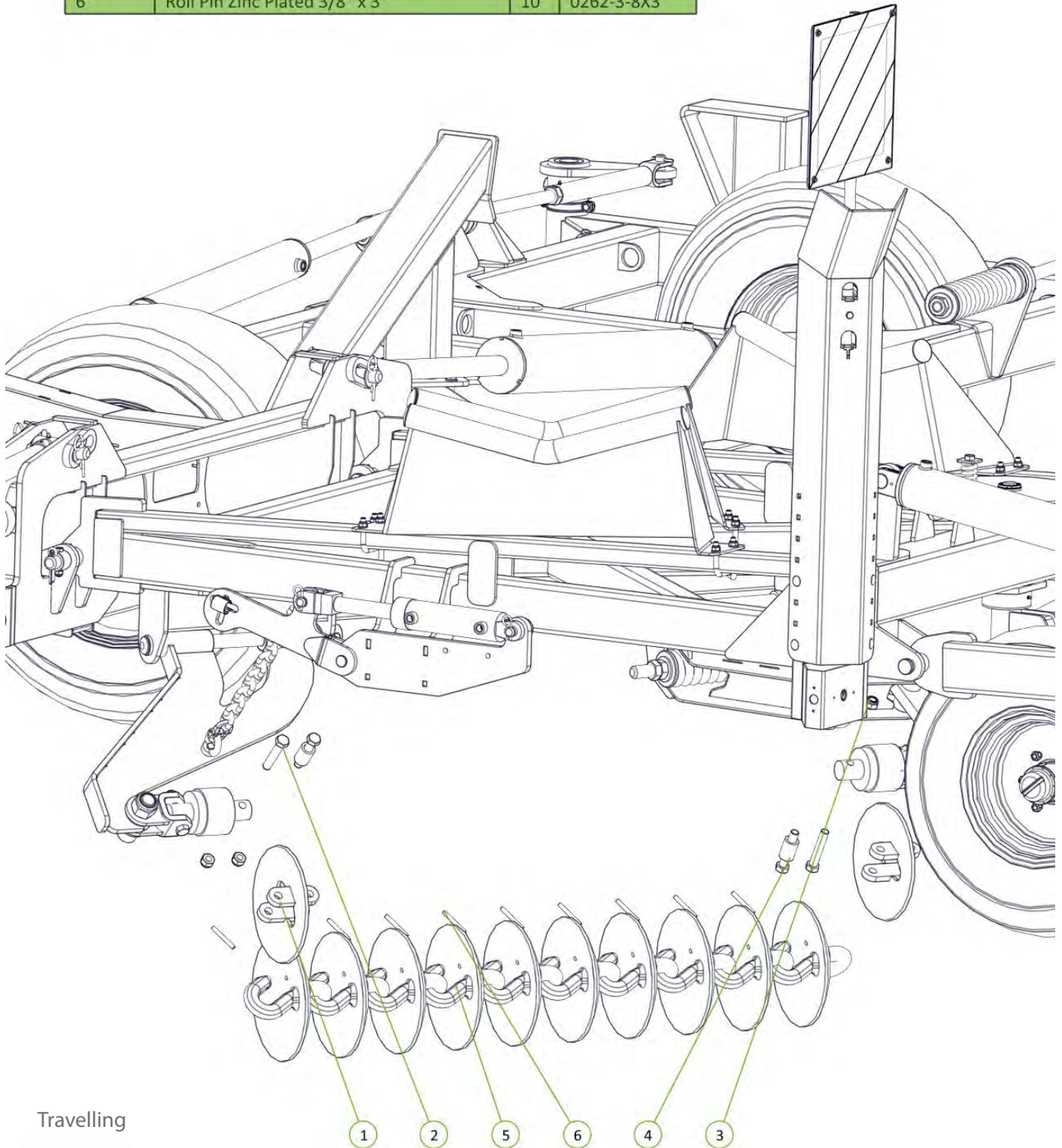
Travelling



Item No.	Description	Qty	Number
1	Tie Plate Disc 20mm	2	0802-DCTP-20
2	M20 x 110 grade 10.9 ZP Short Thread Bolt	4	0211-20110 ST
3	Nyloc Nut M20	4	0221-NYL20
4	Disc Chain Spacer	2	0801-PCDCS55
5	CL1-B Chain Disc Link	10	0803-CL1
6	Roll Pin Zinc Plated 3/8" x 3"	10	0262-3-8X3



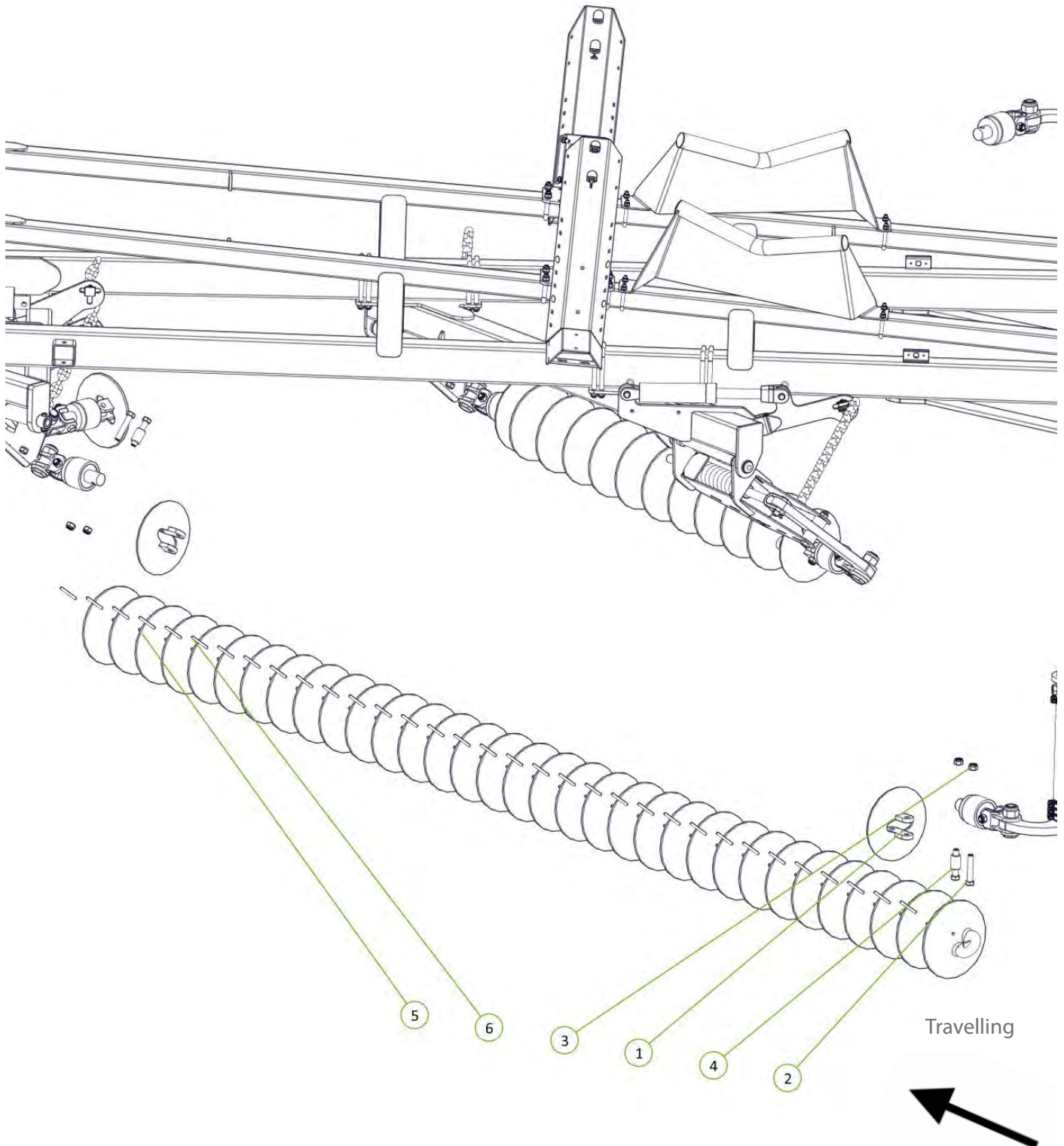
Item No.	Description	Qty	Number
1	Tie Plate Disc 20mm	2	0802-DCTP-20
2	M20 x 110 grade 10.9 ZP Short Thread Bolt	4	0211-20110 ST
3	Nyloc Nut M20	4	0221-NYL20
4	Disc Chain Spacer	2	0801-PCDCS55
5	CL1-B Chain Disc Link	10	0803-CL1
6	Roll Pin Zinc Plated 3/8" x 3"	10	0262-3-8X3



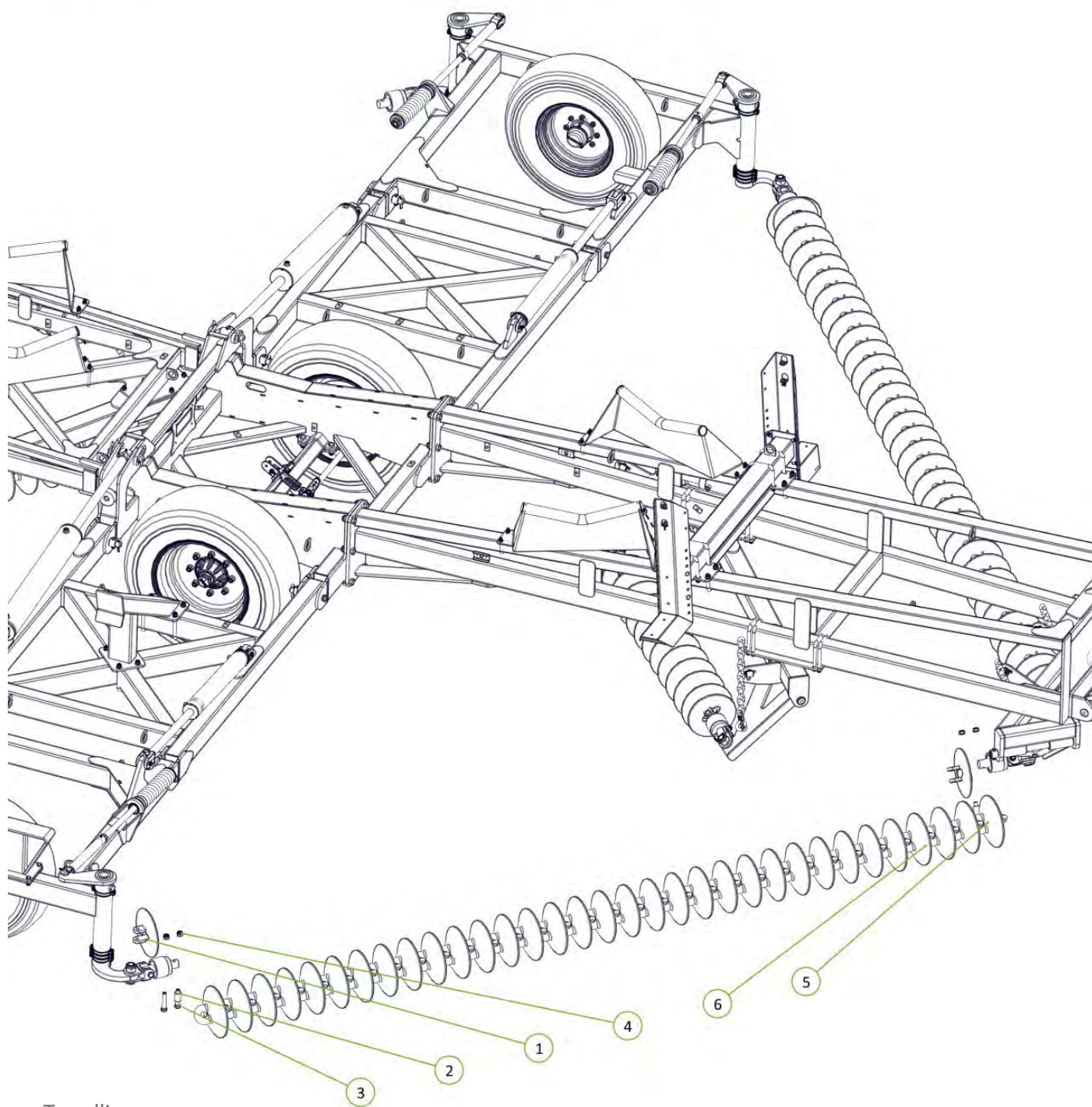
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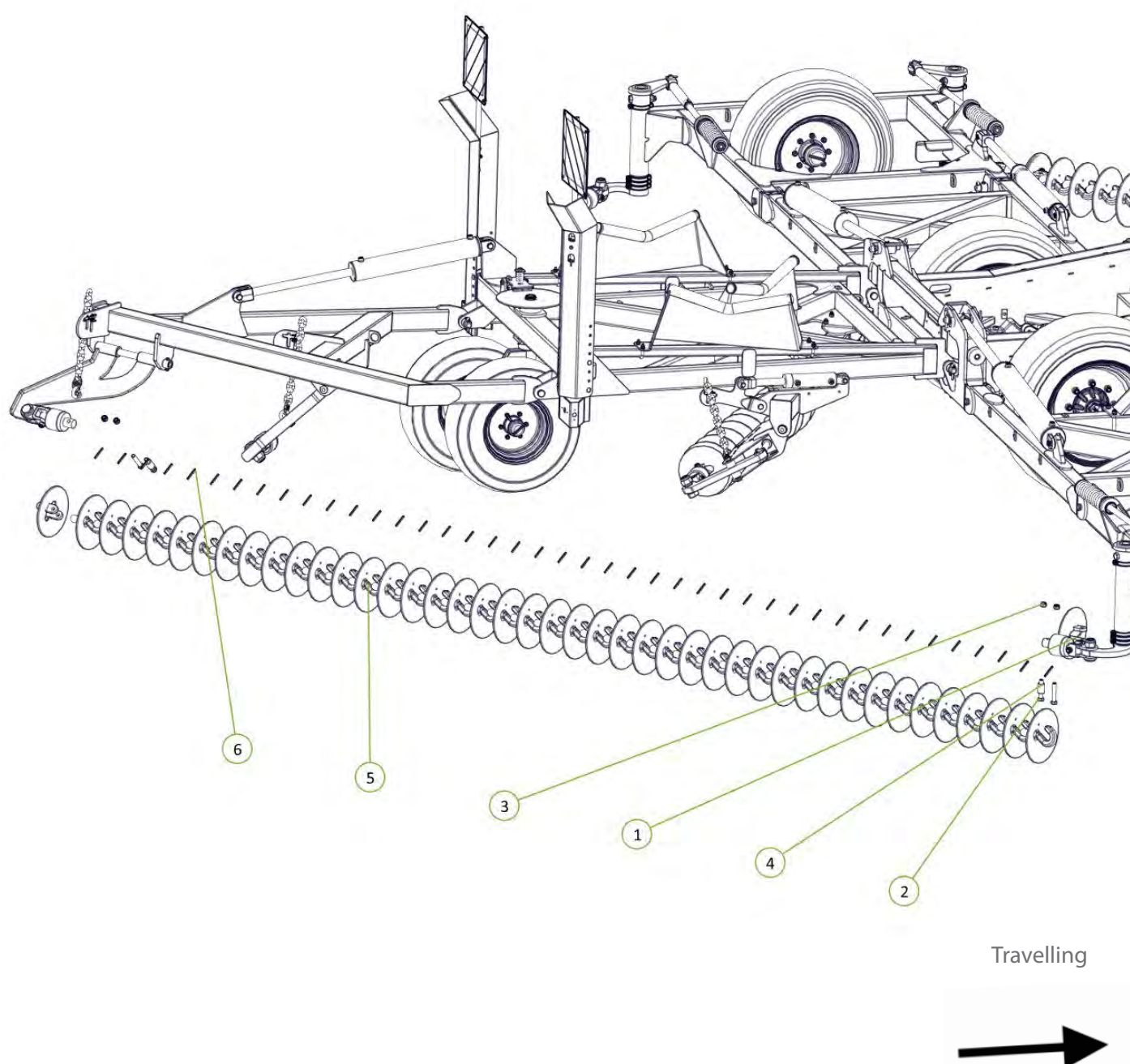
Item No.	Description	Qty	Number
1	Tie Plate Disc 20mm	2	0802-DCTP-20
2	M20 x 110 grade 10.9 ZP Short Thread Bolt	4	0211-20110 ST
3	Nyloc Nut M20	4	0221-NYL20
4	Disc Chain Spacer	2	0801-PCDCS55
5	CL1-B Chain Disc Link	33	0803-CL1
6	Roll Pin Zinc Plated 3/8" x 3"	33	0262-3-8X3



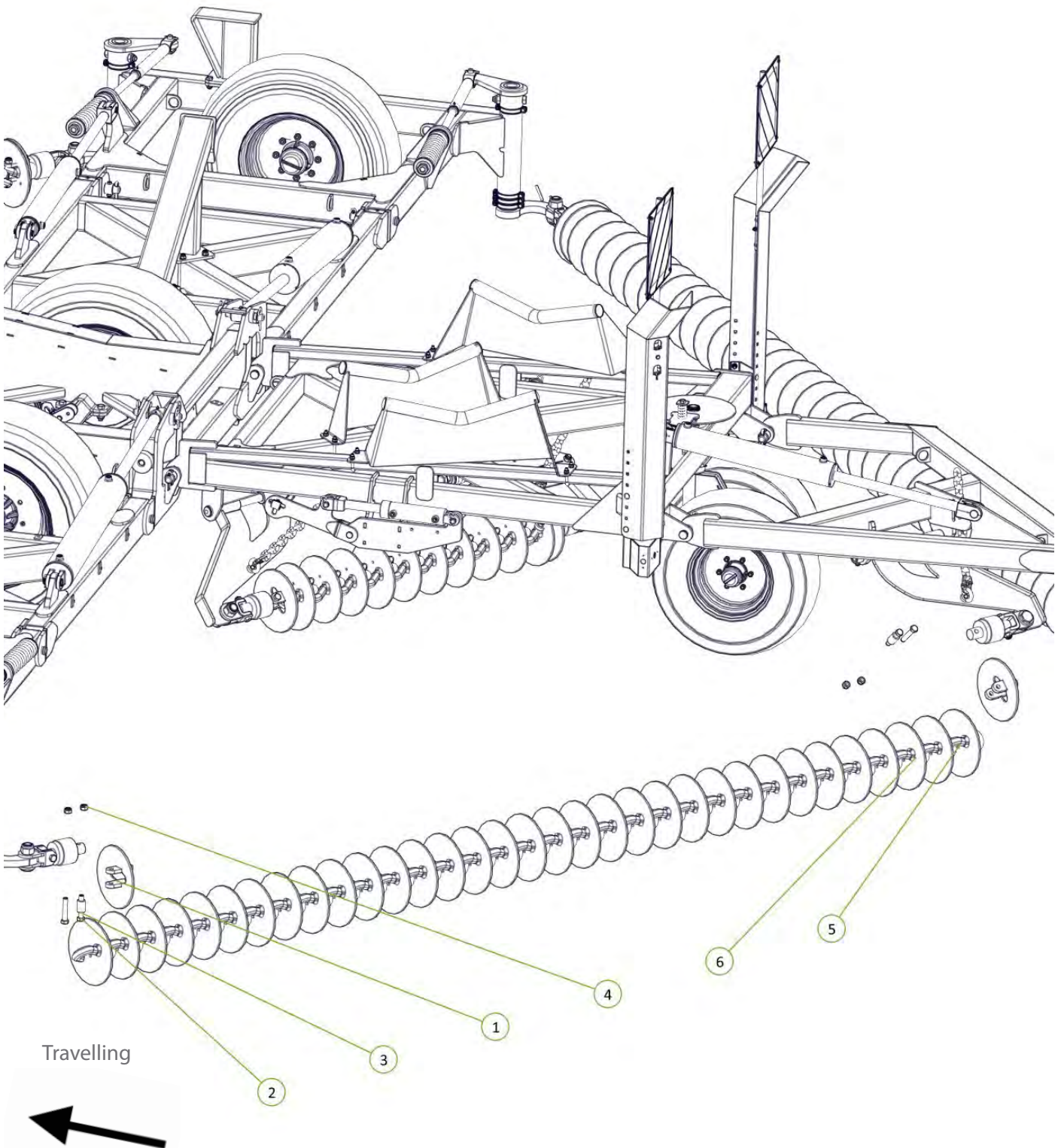
Item No.	Description	Qty	Number
1	Tie Plate Disc 20mm	2	0802-DCTP-20
2	Disc Chain Spacer	2	0801-PCDCS55
3	M20 x 110 grade 10.9 ZP Short Thread Bolt	4	0211-20110 ST
4	Nyloc Nut M20	4	0221-NYL20
5	CL1-B Chain Disc Link	33	0803-CL1
6	Roll Pin Zinc Plated 3/8" x 3"	33	0262-3-8X3



Item No.	Description	Qty	Number
1	Tie Plate Disc 20mm	2	0802-DCTP-20
2	M20 x 110 grade 10.9 ZP Short Thread Bolt	4	0211-20110 ST
3	Nyloc Nut M20	4	0221-NYL20
4	Disc Chain Spacer	2	0801-PCDCS55
5	CL1-B Chain Disc Link	42	0803-CL1
6	Roll Pin Zinc Plated 3/8" x 3"	42	0262-3-8X3



Item No.	Description	Qty	Number
1	Tie Plate Disc 20mm	2	0802-DCTP-20
2	M20 x 110 grade 10.9 ZP Short Thread Bolt	4	0211-20110 ST
3	Disc Chain Spacer	2	0801-PCDCS55
4	Nyloc Nut M20	4	0221-NYL20
5	CL1-B Chain Disc Link	33	0803-CL1
6	Roll Pin Zinc Plated 3/8" x 3"	33	0262-3-8X3



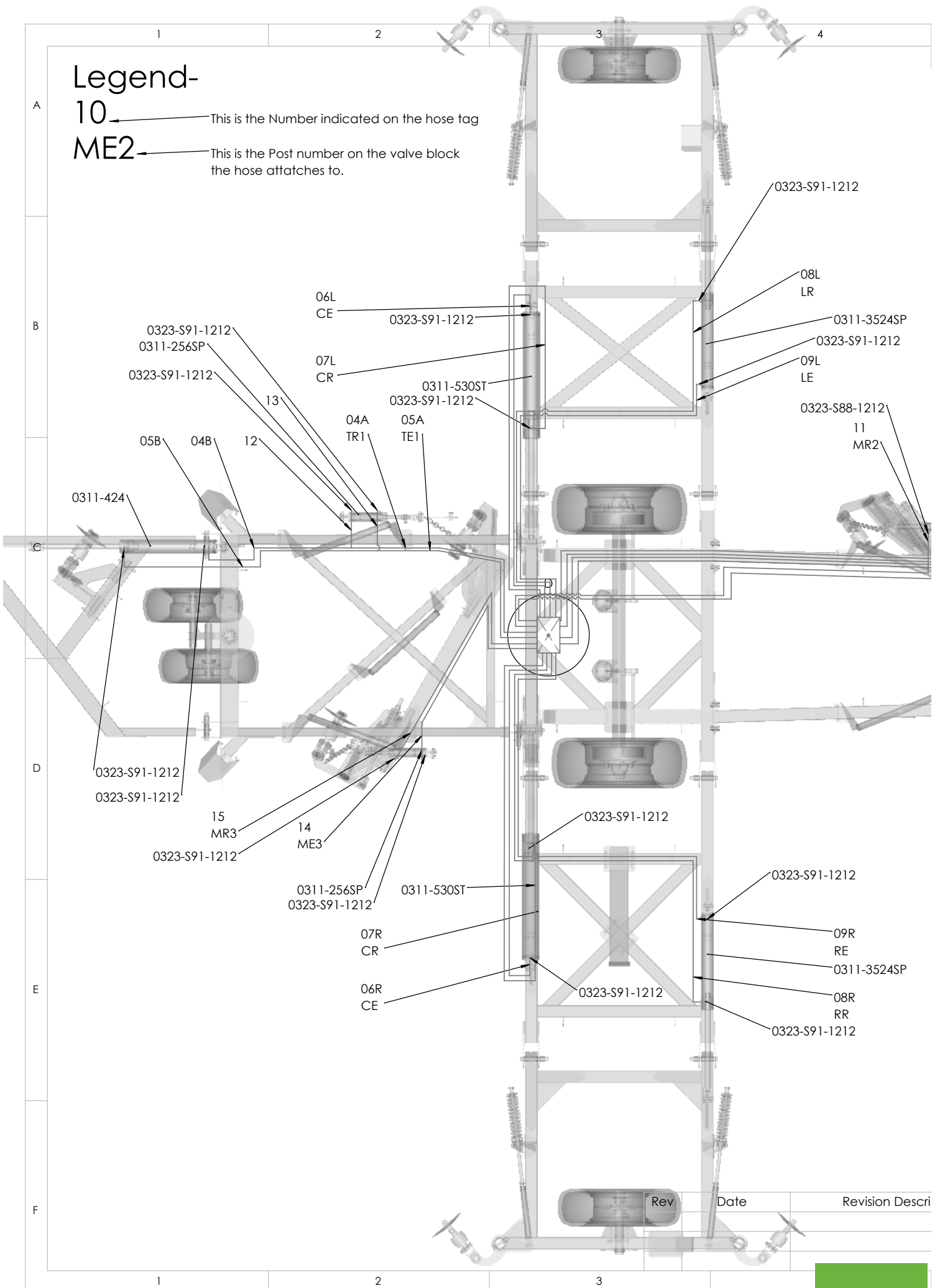
Section 3

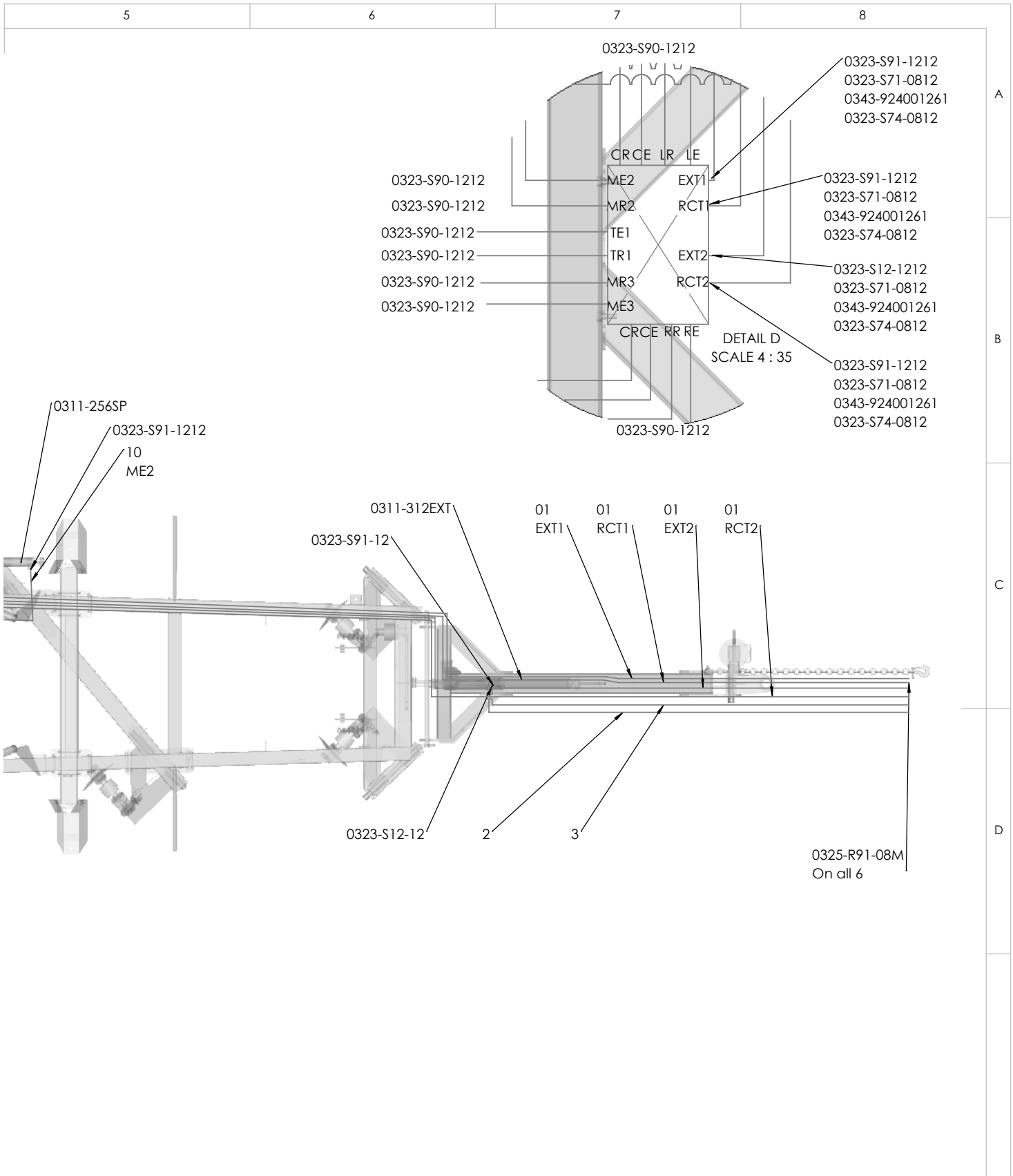
Hydraulic Setup

Legend-

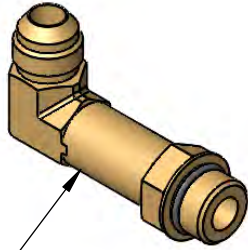
10— This is the Number indicated on the hose tag

ME2— This is the Post number on the valve block the hose attaches to.

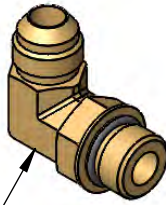




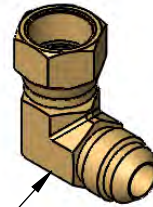
					DO NOT SCALE DRAWING	REVISION
				Tolerance (UNO) .xx ± 0.1mm .x ± 0.2mm x. ± 0.5mm xx ± 1.0mm xxx ± 2.0mm xxxx ± 3.0mm .x* ± 0.1° x* ± 0.5°	TITLE: 9m Machine	
For Machines Built:						
NAME		SIGNATURE	DATE	MATERIAL:		DWG NO.
DRAWN		O Clothier	12/09/2016			1530-100 HYD
CHK'D		Approval via EPDM				A3
WEIGHT:				SCALE:1:200		SHEET 1 OF 1



0323-S12-1212
3/4" JIC Male - 3/4" UNO Male
Extended 90° Elbow



0323-S91-1212
3/4" JIC Male - 3/4" UNO Male
90° Elbow



0323-S15-1212
3/4" JIC Male - 3/4" JIC Female
90° Elbow



0323-S71-0812
1/2" BSPP O Ring Male - 3/4" JIC Female
Adaptor



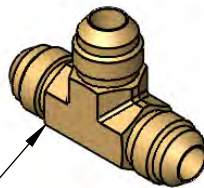
0323-S74-0812
1/2" BSPP O Ring Male - 3/4" JIC Male
Adaptor



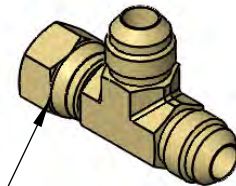
0323-S88-1212
3/4" JIC Male - 3/4" UNO Male
45° Elbow



0323-S90-1212
3/4" JIC Male - 3/4" UNO Male
Adaptor



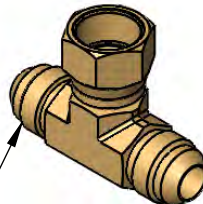
0324-S19-121212
3/4" JIC Male
Tee



0324-S67-121212
3/4" JIC Male - 3/4" JIC Female - 3/4" JIC Male
Tee



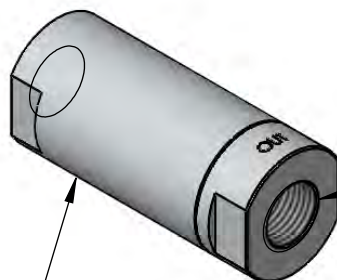
0324-S92-121212
3/4" JIC Male - 3/4" JIC Female - 3/4" UNO Male
Tee



0324-S68-121212
3/4" JIC Male - 3/4" JIC Female - 3/4" JIC Female
Tee



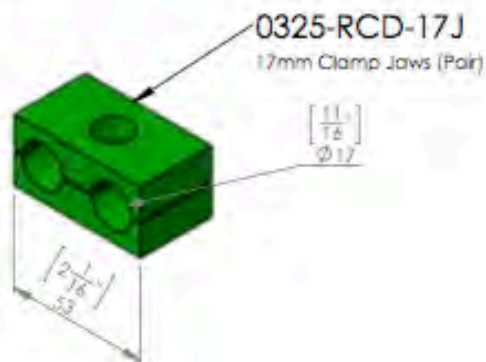
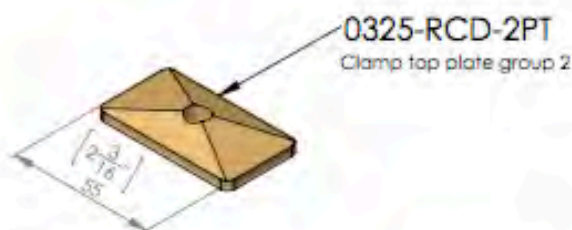
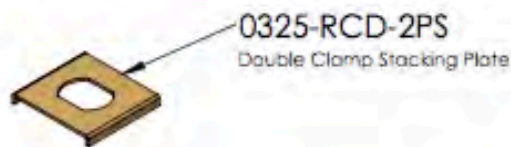
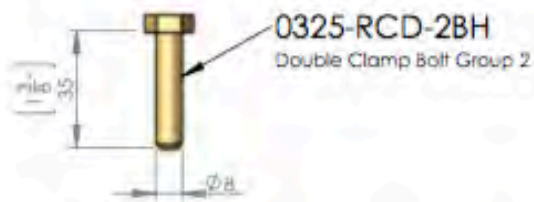
0325-R91-08M
1/2" BSPP
Quick Release Ball Coupling



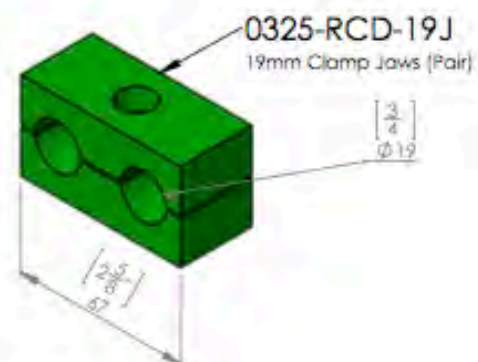
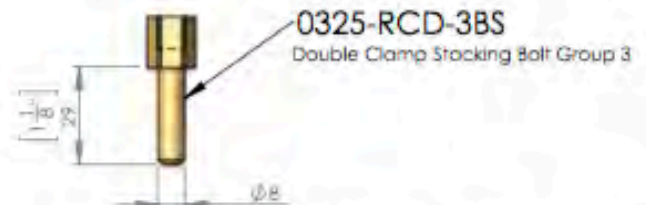
0343-924001261
1/2" BSPP 60 micron inline filter
max flow 60L/M & 5000psi max pressure

Note: Fit this end to valve block

New Style Hose Clamp Components
Fits Hose T5006A

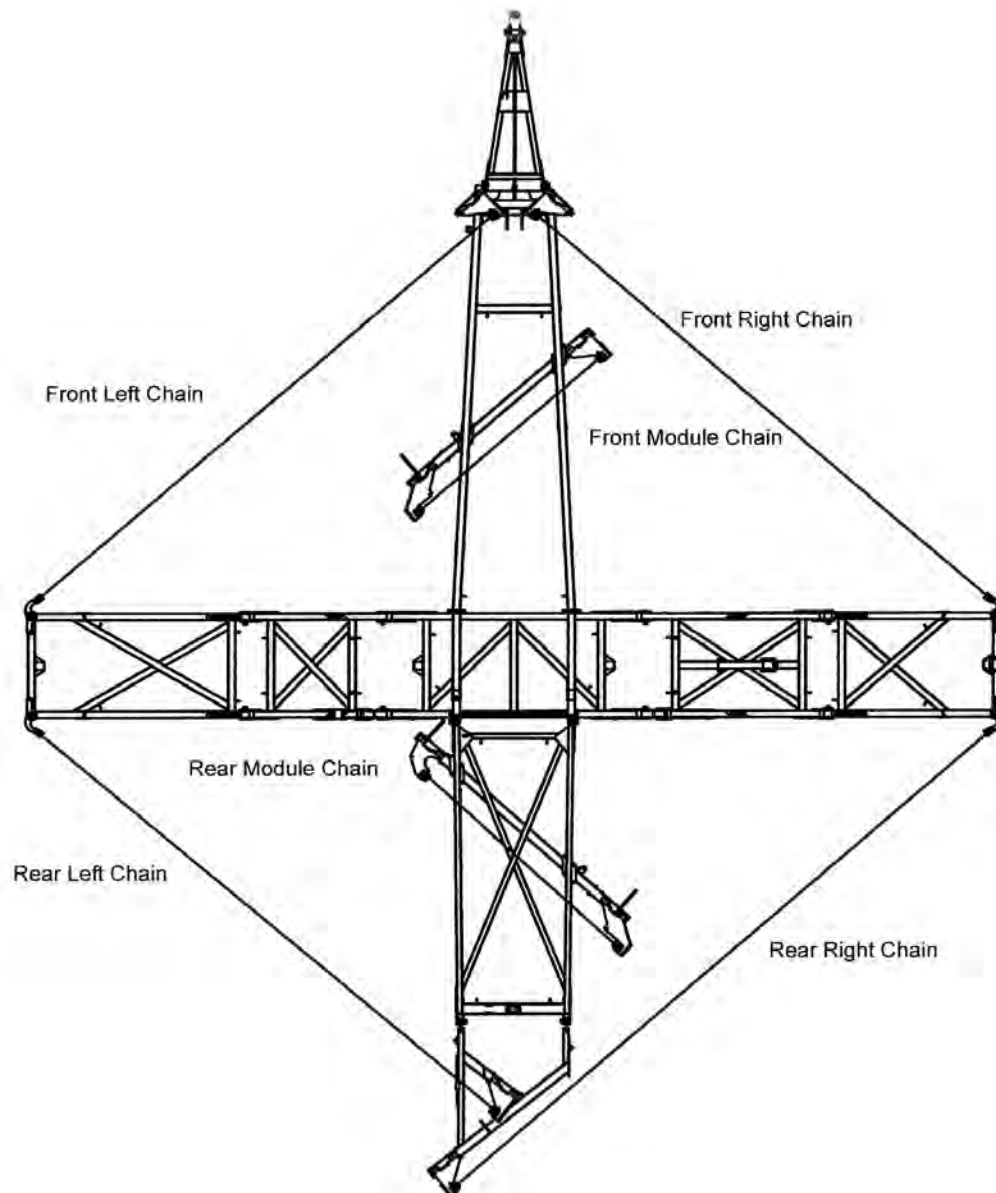


Old Style Hose Clamp Components
Fits Hose T26A



Section 4

Diagrams & Charts



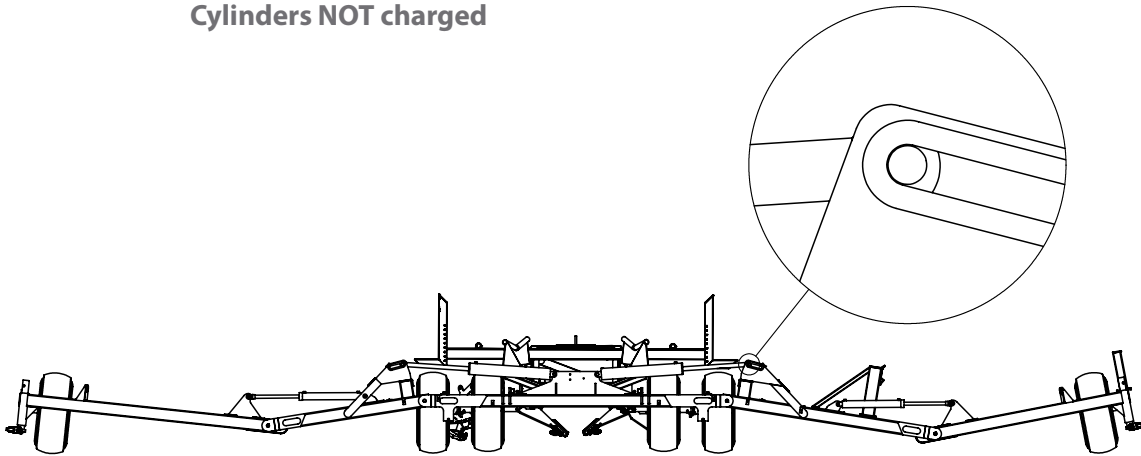


Before folding the machine for the first time, ensure all hydraulic cylinders are charged with oil.

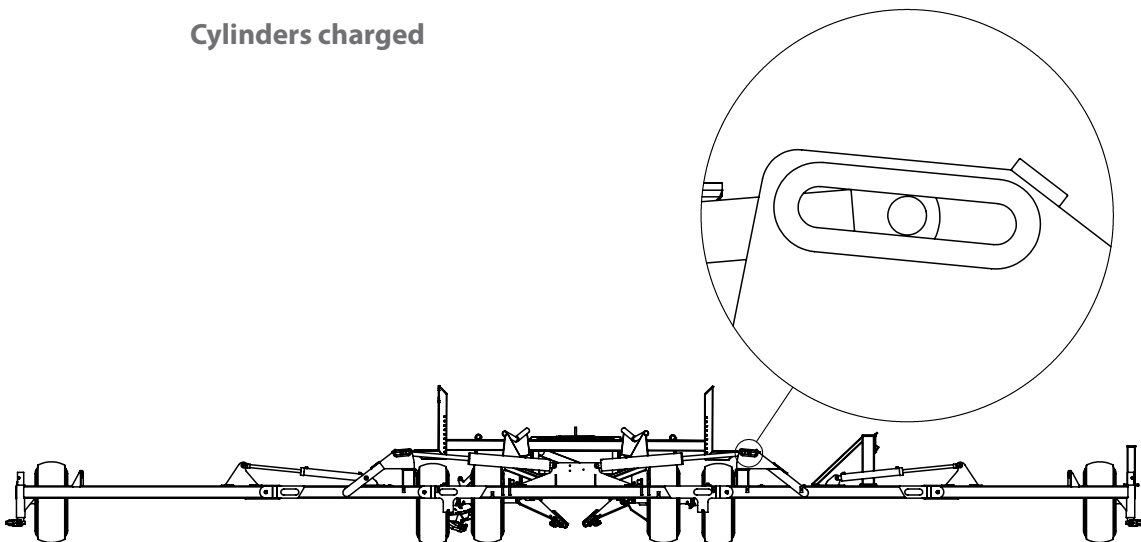
To do this, run the hydraulics through the unfold sequence until the outer wings are straight and the centre cylinders are centred in the slots. (It may take a few minutes for the cylinders to charge completely).

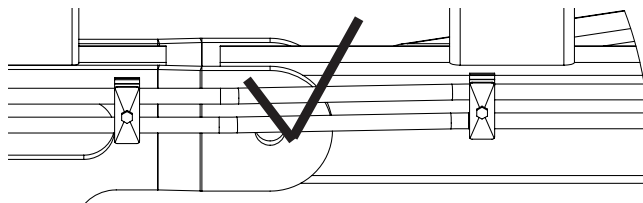
Failure to do this could result in severe personal injury and/or damage to the machine.

Cylinders NOT charged

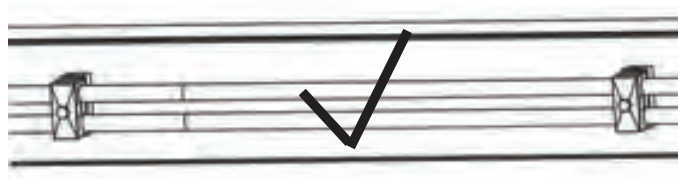


Cylinders charged

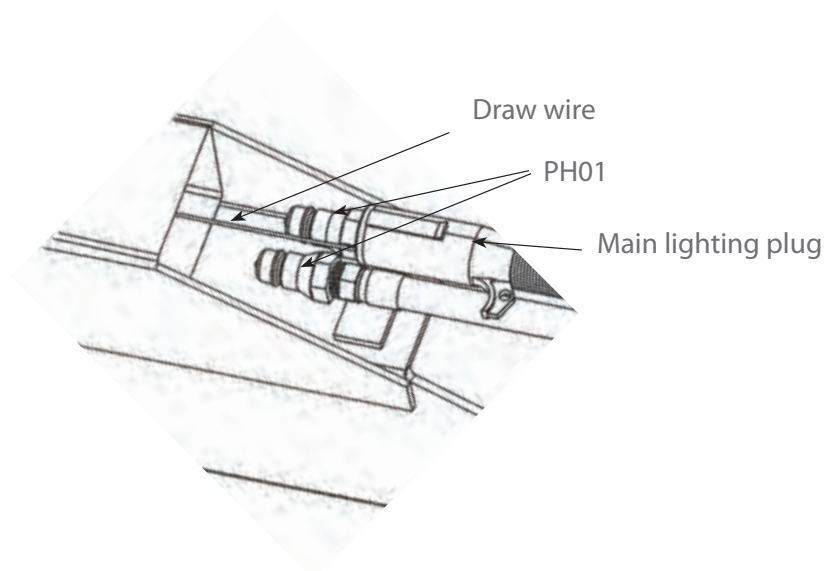


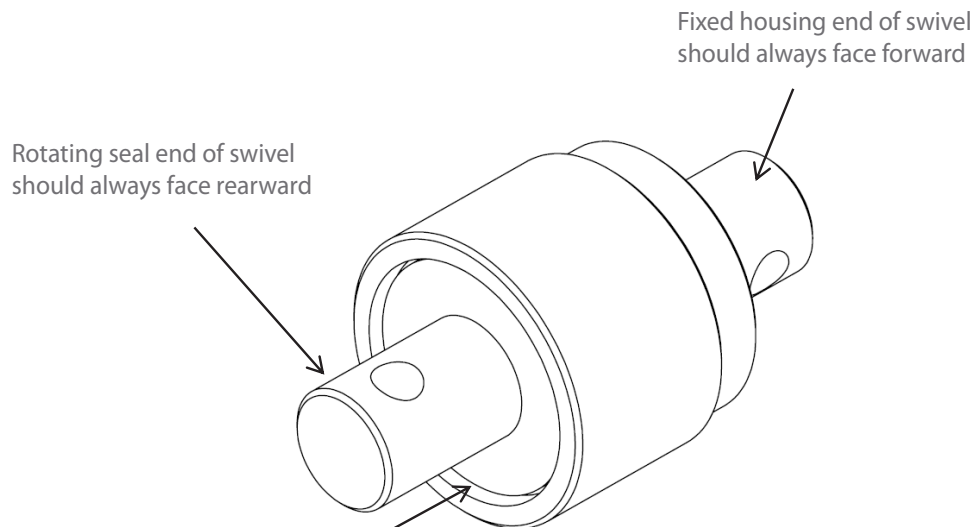


Correct layout of hoses



Avoid crossovers

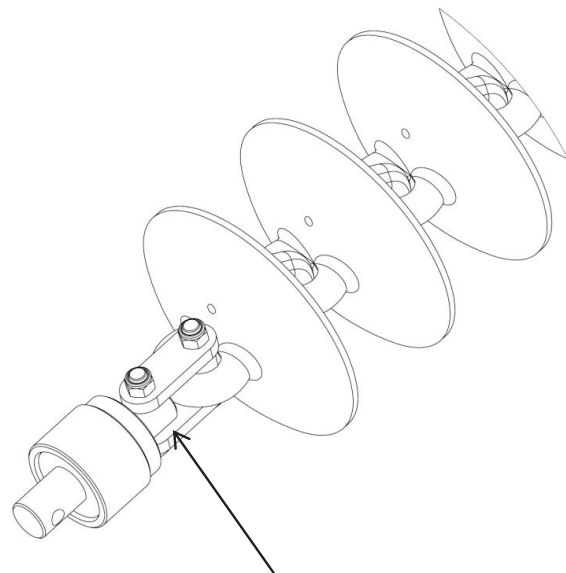
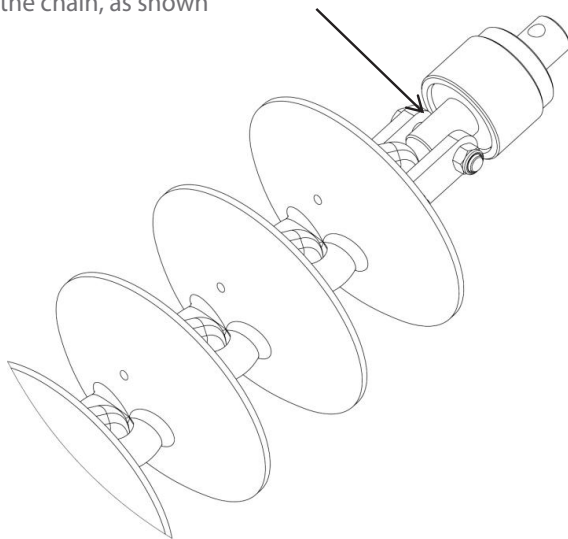




Mounting like this prevents dirt getting forced into the seals of the swivel increasing longevity of the swivel

For example

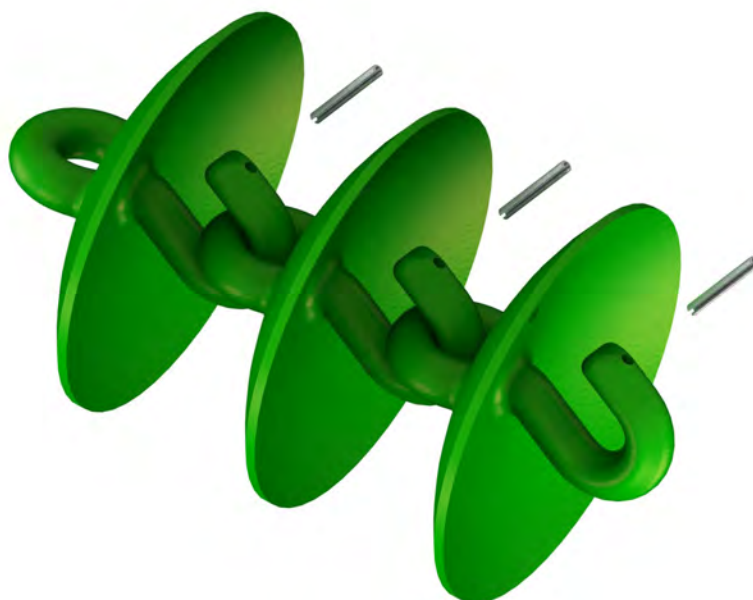
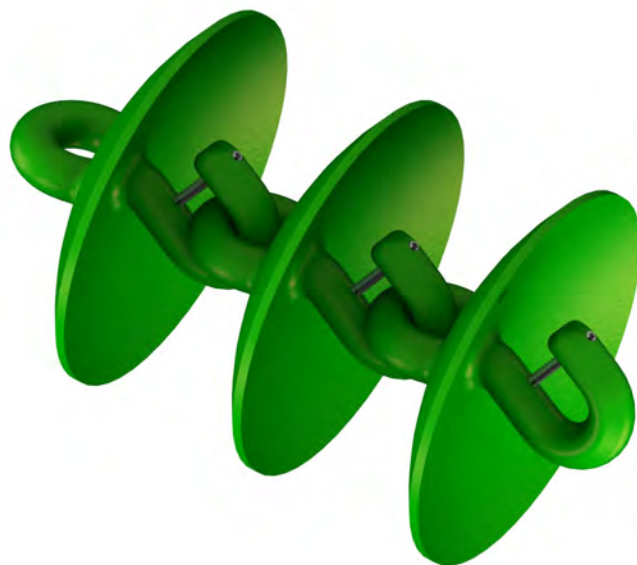
Swivels attached to the leading ends of the chains should have the rotating seal end attached to the chain, as shown



Swivels attached to the trailing ends of the chains should have the fixed housing end attached to the chain, as shown

Fitting Cast Link Retaining Pins

Please install cast link retaining Pins (3/8" x 3" Roll Pin, part number 0262-3-8X3) on all cast disc links. Failure to do this could lead to the discs becoming dislodged during transport causing severe damage or injury.



Operating speeds

Operating speeds for normal conditions

Chain type	Speed
Prickle Chain	6-10 Mph / 10-16 kmph
Disc Mulch Chain	6-8 Mph / 10-12 kmph
Transport / towing on roads	15 Mph / 25 kmph

Tire pressure

Tire size	Ply	PSI	KPA
16.5L x 16.1	14	36	250
H40 x 14.5-19	26	60	410
11L - 15	10	44	300
15.5/80/24	16	58	400
16.5/85/24	16	55	380
550/60/22.5	16	40	280
400/60/22.5	16	50	350
12.5/80/18	14	85	590
15.0/70/18	14	71	490

Chain Harrow specifications

Model	9m
Working width	30'/9.1m
Transport width	7.9'/2.4m
Transport height	11.2'/3.4m
Transport length	39.4'/12.0m

Bolt Torque Settings

Bolt Type	Wheel nut				U Bolt			Grade 8.8 Bolt					Grade 10.9 Bolt	
Bolt Size	M18	M20	1/2"	9/16"	M10	M12	M16	M10	M12	M16	M20	M24	M20	M24
Ft lb	255	265	90	100	22	36	55	32	48	140	190	270	300	350
Nm	345	360	125	140	30	50	75	44	65	190	260	370	406	475

[1] When fitting a wheel & tire to a hub, do the wheel nuts up in rotation to the correct tension. To achieve this choose a wheel nut & tighten, then go clockwise to the next wheel nut & tighten & so on until all wheel nuts are tight. Then repeat the procedure to check that all nuts are tight. Do not use impact tools to tighten wheel nuts. For a guide to the correct tension of the wheel nuts please use the appropriate tension for your size wheel nuts from the Bolt Torque Settings table.

Torque values are for dry threads and surfaces however it is permissible to apply a small amount of anti corrosive oil to the threads.

Disc Chain lengths

Model		Length	CL2 (CL2 disc chain also requires CL1 disc chain)	CL1	W36	SD49	R300	PICKLE CHAIN
9m	Front right	17.4' / 5.31m	CL2 23 / CL1 2	33	32	42	42	59
	Front left	17.3' / 5.28m	CL2 23 / CL1 2	33	32	42	42	59
	Rear right	22' / 6.73m	CL2 23 / CL1 11	44	41	54	54	75
	Rear left	17.2' / 5.24m	CL2 23 / CL1 2	33	32	42	42	58
	Modules front	5.6' / 1.71m	CL2 6 / CL1 2	10	10	14	14	19
	Modules rear	5.1' / 1.58m	CL2 6 / CL1 2	10	10	13	13	18

Section 5

Operation

Basic Operation

Unfolding:

1. Walk around and inspect the machine.
 - a. Check that chains are not hooked on framework
 - b. Check swivel bolts are in place and not broken
 - c. Check that height adjusting chains have not fallen out of their slotted plates during transport.
2. Lower front A frame to working height.
3. Unfold wings holding the hydraulic lever until the tail is in working position and the main center cylinder pins have centered in their slots.
4. Walk around and check that all chain links are straight and that working height of all swivels is correct for field conditions. Adjust if necessary.
5. Move off with all chains in working position. If necessary it is acceptable to raise front A pull to transport height. This will lift the front chains off the ground and reduce the load on the tractor. Lower the front A pull once moving satisfactorily.

Folding:

1. Lower the front A frame to working height. (This is important to ensure that all chains locate correctly in their transport rests).
2. Fold the wings. They should move as follows; modules will raise, tail will raise, main center cylinders will retract, one or both, until the wings stand vertically. The left outer wing then the right outer wing will fold down.
3. Raise front A frame to transport height.
4. Walk around and check that chains have located correctly in transport rests.
(30' only, install wing transport lock pins).

Setting for correct chain tension

Wings

Use the spanner supplied. Loosen the lock nut adjacent to the tensioner assembly body. Turn the tension bolt clockwise to compress the coil spring. Correct tension is achieved when spring retains its set length when operator rolls the chain fore and aft on the ground. Retighten the lock nut. See table below

Spring Compression Length

Model	inches	mm
40	12.4	315

When less than 4" (100mm) of thread remains visible on the adjustor bolt then a link must be removed from the chain



Modules

Loosen the lock nut on the draw bolt.

Tighten the adjusting nut clockwise until the outer face of the spring retaining washer is flush with the



Importance of chain tension

Operational

It is imperative that the correct adjustment be maintained. Only through correct adjustment can a smooth and level finish be achieved in field working.

Loose chains lead to :

- Uneven performance across the width of the machine
- Uneven weed control
- Unsatisfactory incorporation
- Ineffective levelling
- Accelerated or premature chain wear
- Chains failing to engage with transport locators when folded
- Machine damage when folding or unfolding
- Uneven field surface with ridges and furrows being created. The leading 1/3rd of a loose chain is much more aggressive than the trailing 1/3rd and the center. This will mean that middle of the machine's front pair of chains will aggressively move soil outwards. The machine's rear pair of chains, if loose, have their aggressive 1/3rd near the wing extremity. It follows then that as the front discs push soil outwards, the least aggressive portion of the rear chain follows them and does not balance the soil movement. This is exacerbated at the wings, effectively creating a broad ridge about halfway out each wing. It won't be evident in one pass, but is possible if care is not taken over time.

A correctly adjusted machine will not cause this phenomenon.

Settings for correct working height

To adjust the swivel height at the wings, relocate one of the polyurethane spacers either above or below the fixed mounting tube.

Adjustment

1	Loosen chain tension completely
2	Undo self tapping screw from corresponding spacer then prise open the spacer and spring it off of the drop leg tube
3	Replace it in the selected position after raising or lowering the drop leg
4	Reinstall the self tapping screw and re-tension the chain

It is possible to install all spacers either above or below the mounting tube giving a maximum of 4" (100mm) of adjustment.

