Diamond Chain Harrow

Assembly and Parts Manual

Model 30

Revision K February 2019

Website (Australia): www.kellyengineering.com.au
Website (Europe): www.kellytillage.eu
Website (US): www.kellyharrows.com

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.

Australia
Kelly Engineering
PO Box 100
Booleroo Centre SA 5482
Phone: + 61 8 8667 2253
Fax: + 61 8 8667 2250
Email: sales@kellyengineering.com.au
Spare Parts: parts@kellyengineering.com.au
Website: www.kellyengineering.com.au

Europe
Kelly Engineering
Email: sales@kellytillage.eu
Website: www.kellytillageeu

United States
Kelly Engineering
Website: www.kellyharrows.com

Spare Parts
Hood & Company Inc
Springfield MO
Phone: 417 865 2100
Fax: 417 865 2105
Email: hoodco@hoodco.com

Contents

Section 1
Unpacking

Unpacking

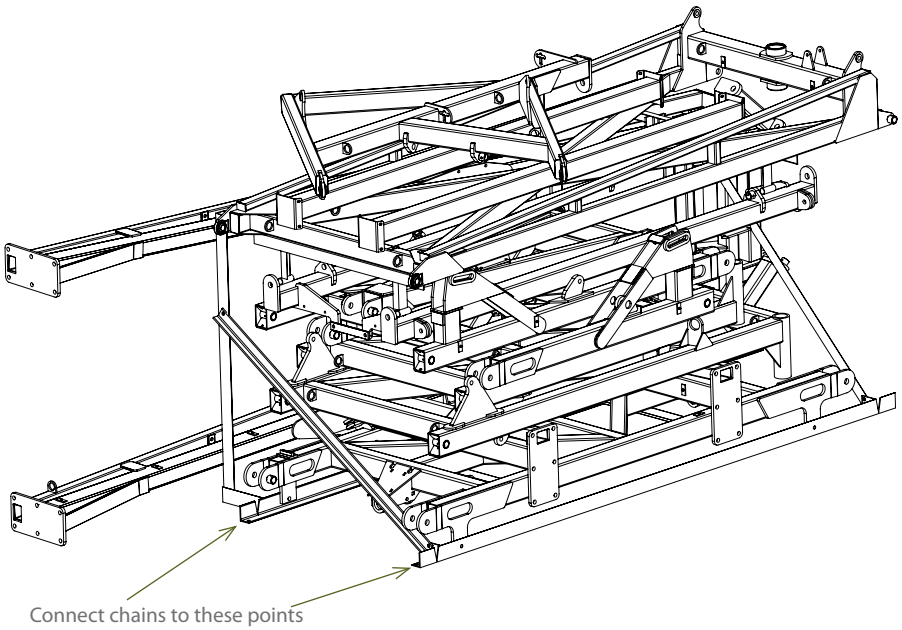
We recommend the use of suitable lifting equipment for unloading and assembly

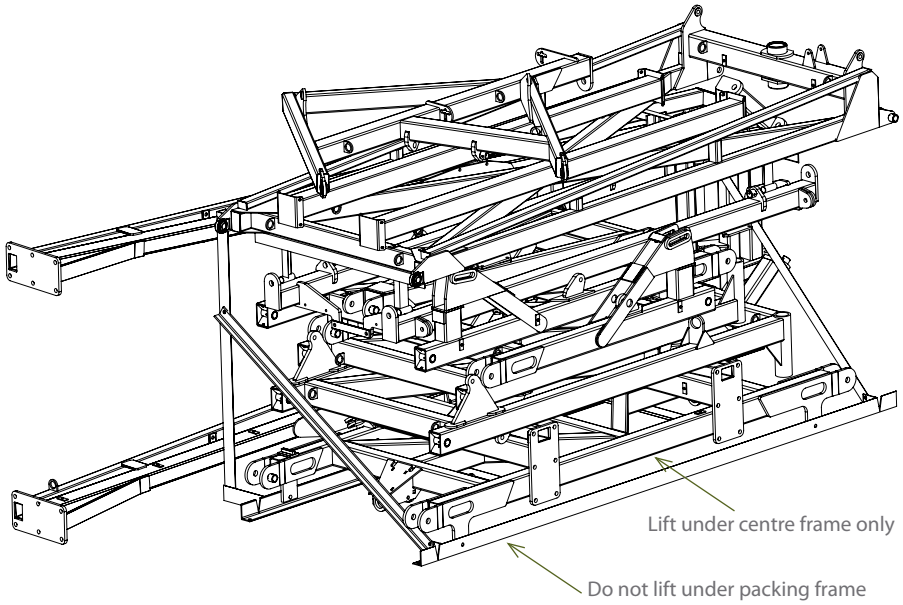
- Before unloading any loads please inspect exterior for damage

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 (1200kg)
- 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.

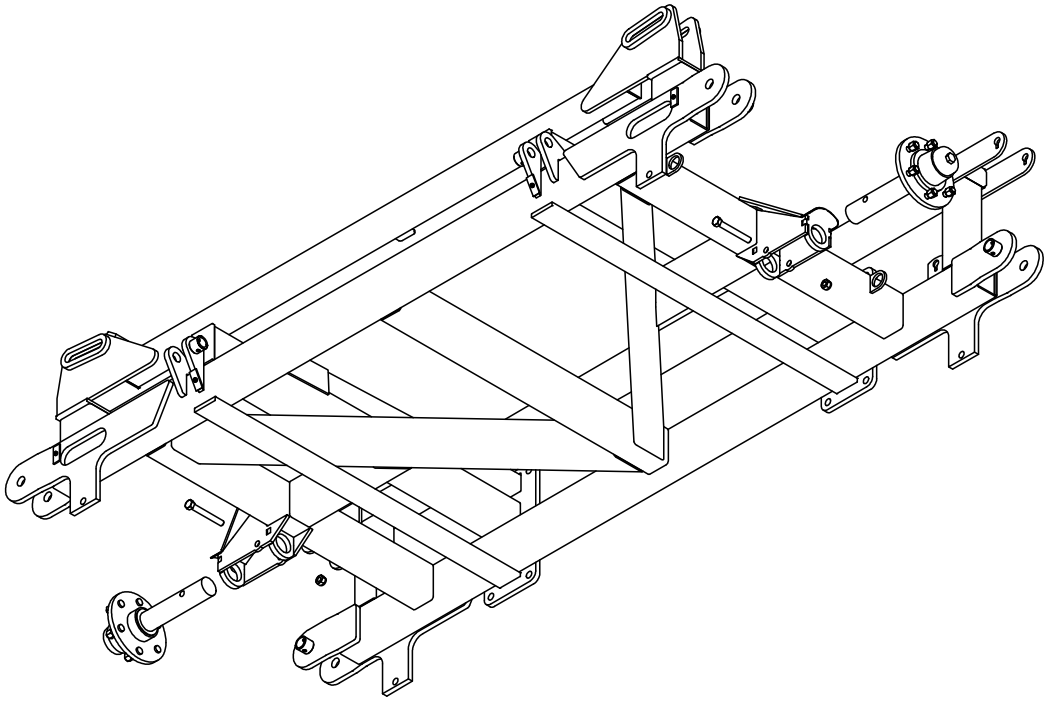
CAUTION

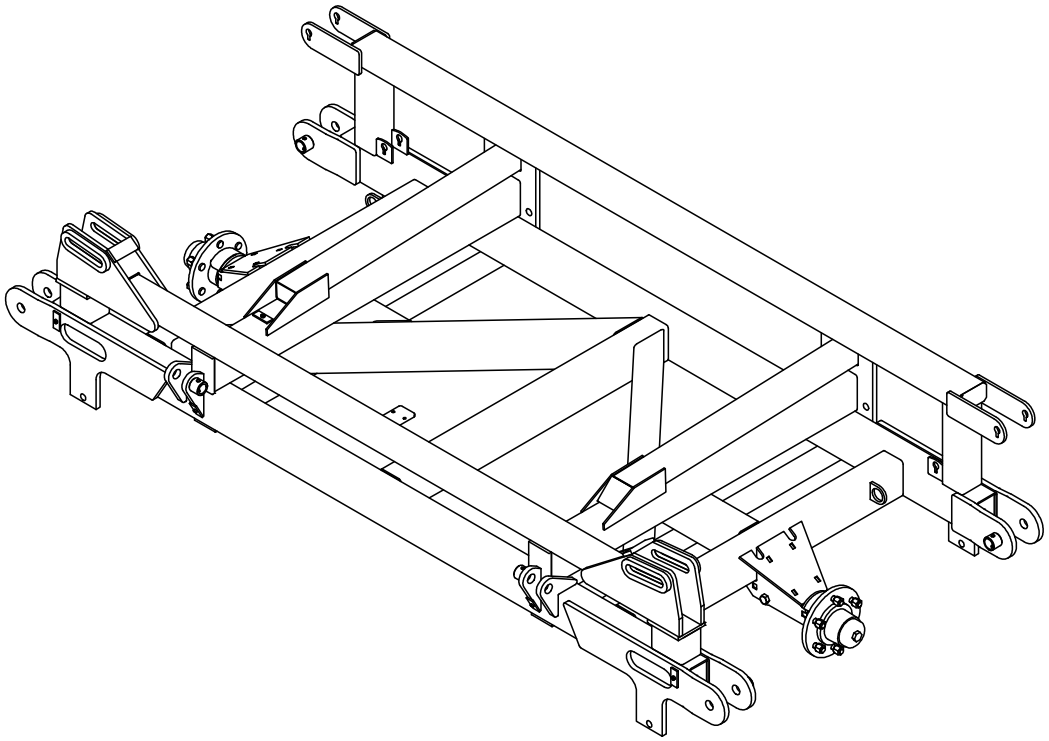
To avoid falling or moving components, before cutting straps attach slings or chains to individual pieces and only cut the straps holding the piece to be lifted.

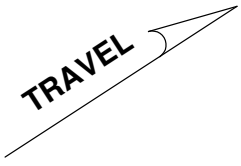
- Remove boxes from rear of container one at a time using a forklift truck. Each box weighs approximately 2600 lbs (1200 kg)
- Cut straps holding bundles and separate parts and place in assembly area
- Once all parts have been identified machines are ready for assembly
- Identify parts for each machine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

Section 2
Parts

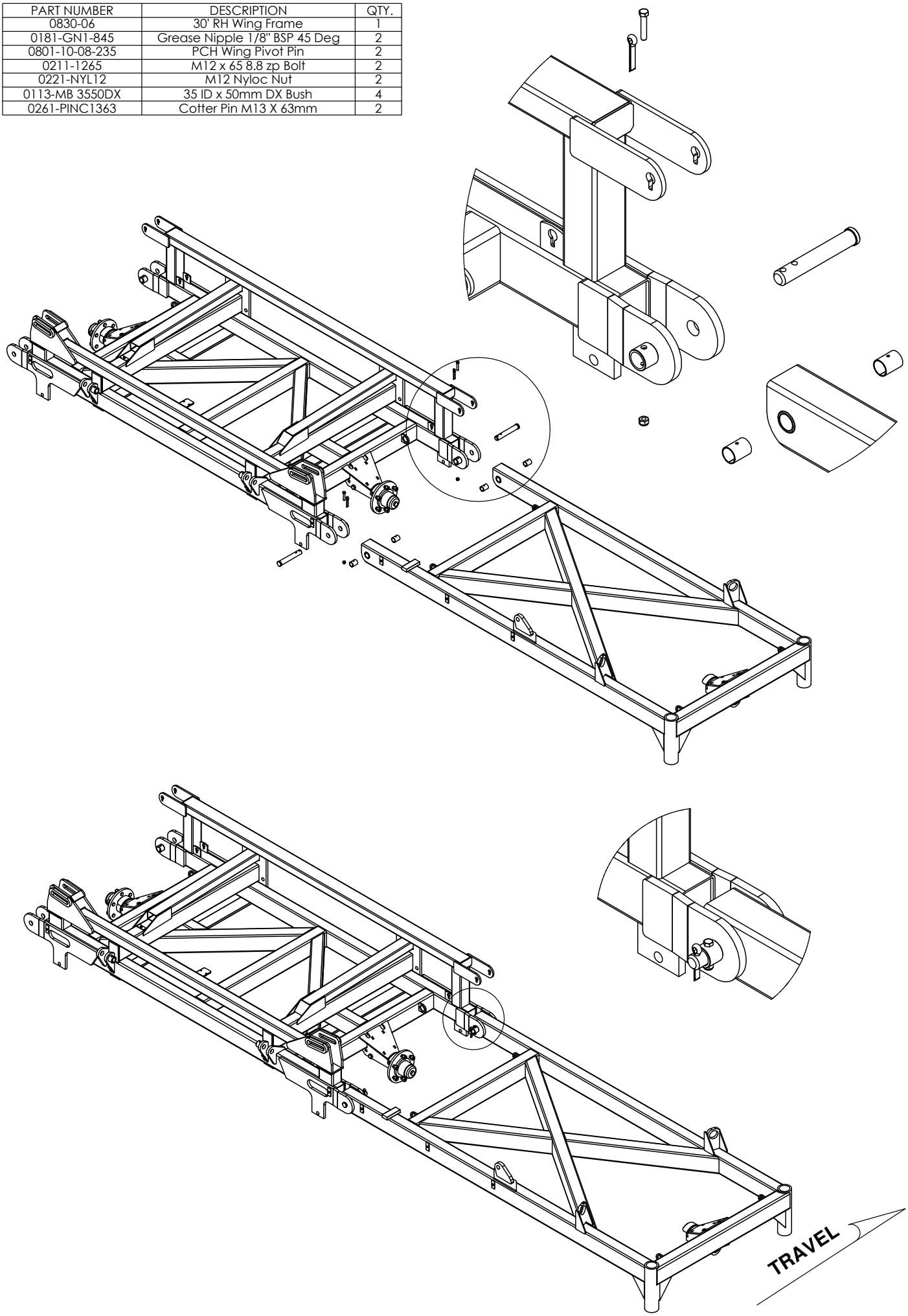
PART NUMBER	DESCRIPTION	QTY.
0830-01	30' Centre Frame	1
0733-SH275966205	2.75"R 6 Tonne 8 on 8' PCD Hub Complete	2
0211-20150	M20 x 150 8.8 zp Bolt	2
0221-NYL20	M20 Nyloc Nut	2



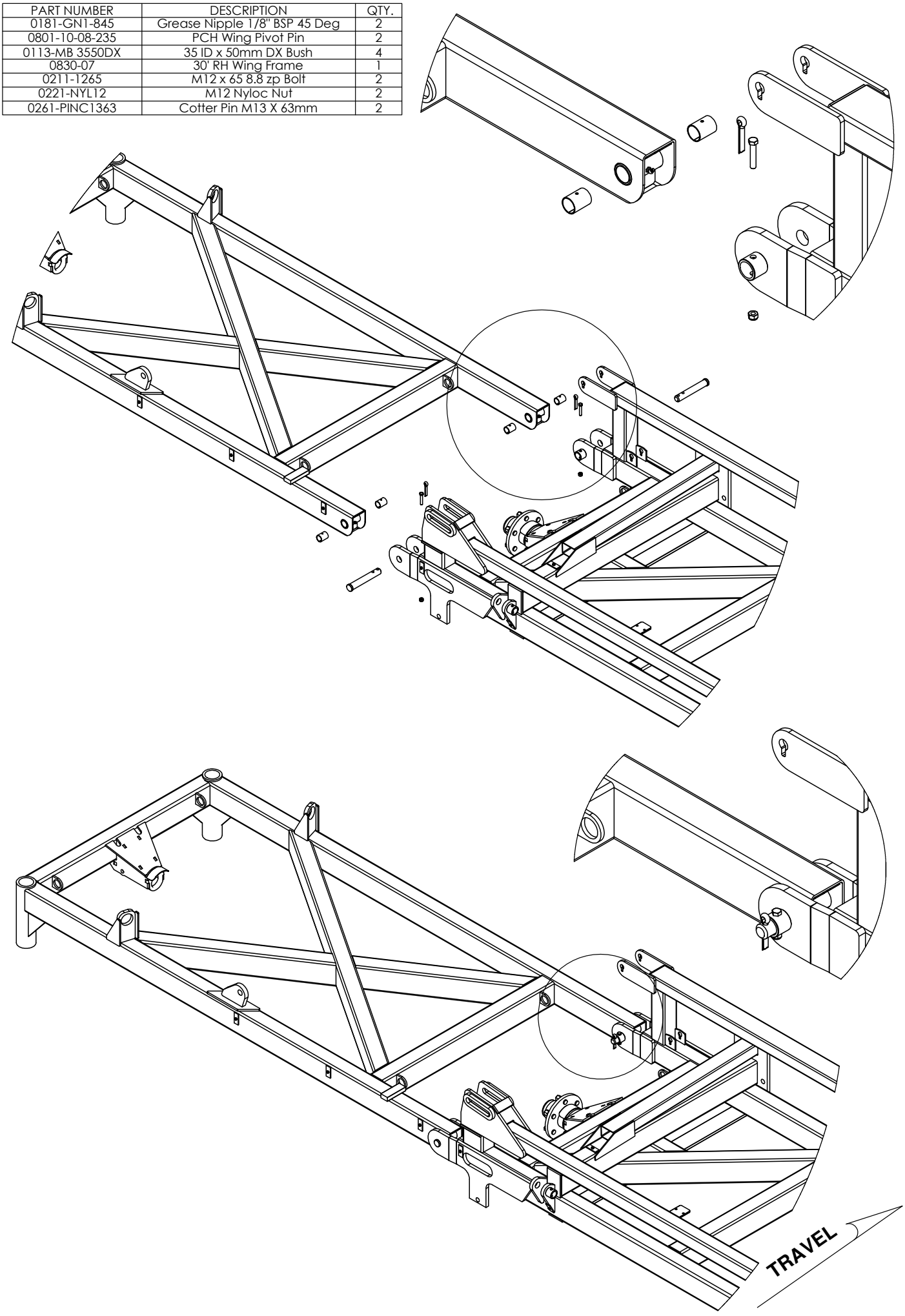




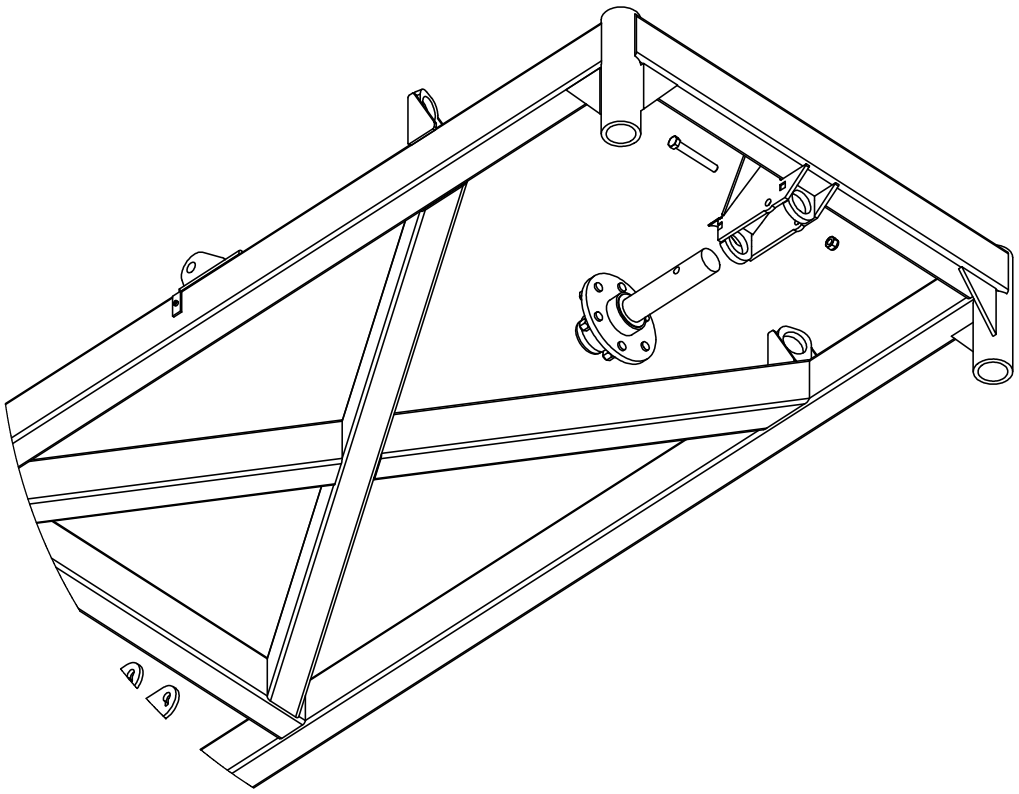
PART NUMBER	DESCRIPTION	QTY.
0830-06	30' RH Wing Frame	1
0181-GN1-845	Grease Nipple 1/8" BSP 45 Deg	2
0801-10-08-235	PCH Wing Pivot Pin	2
0211-1265	M12 x 65 8.8 zp Bolt	2
0221-NYL12	M12 Nyloc Nut	2
0113-MB 3550DX	35 ID x 50mm DX Bush	4
0261-PINC1363	Cotter Pin M13 X 63mm	2

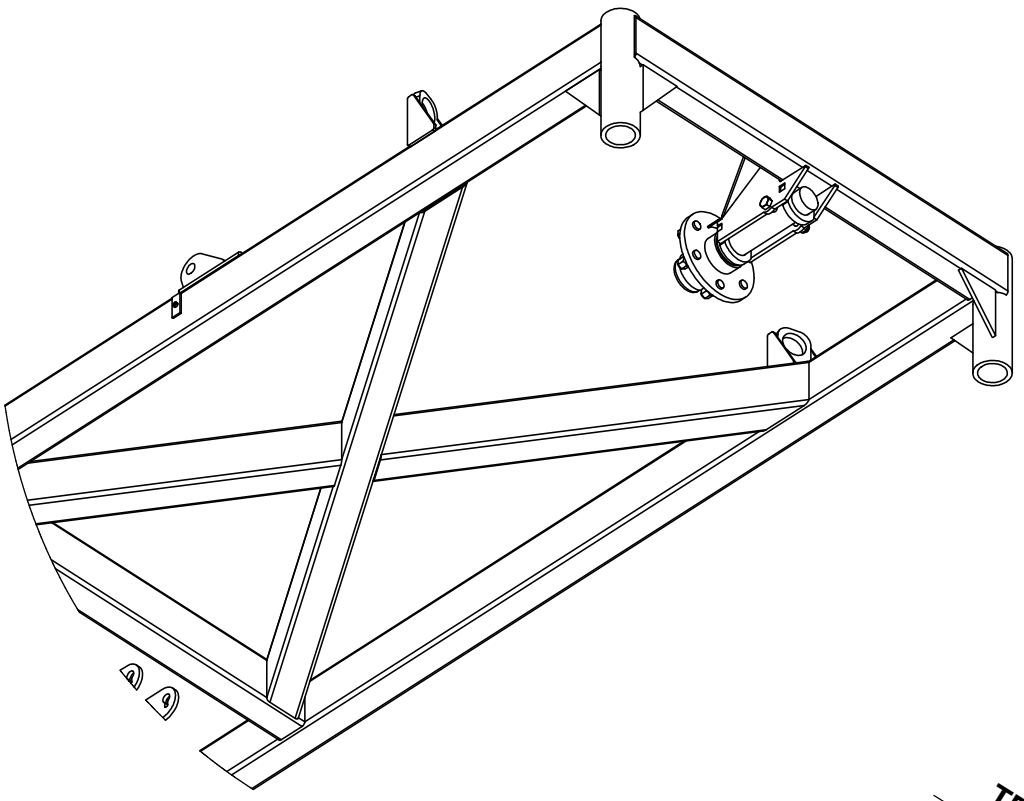


PART NUMBER	DESCRIPTION	QTY.
0181-GN1-845	Grease Nipple 1/8" BSP 45 Deg	2
0801-10-08-235	PCH Wing Pivot Pin	2
0113-MB 3550DX	35 ID x 50mm DX Bush	4
0830-07	30' RH Wing Frame	1
0211-1265	M12 x 65 8.8 zp Bolt	2
0221-NYL12	M12 Nyloc Nut	2
0261-PINC1363	Cotter Pin M13 X 63mm	2



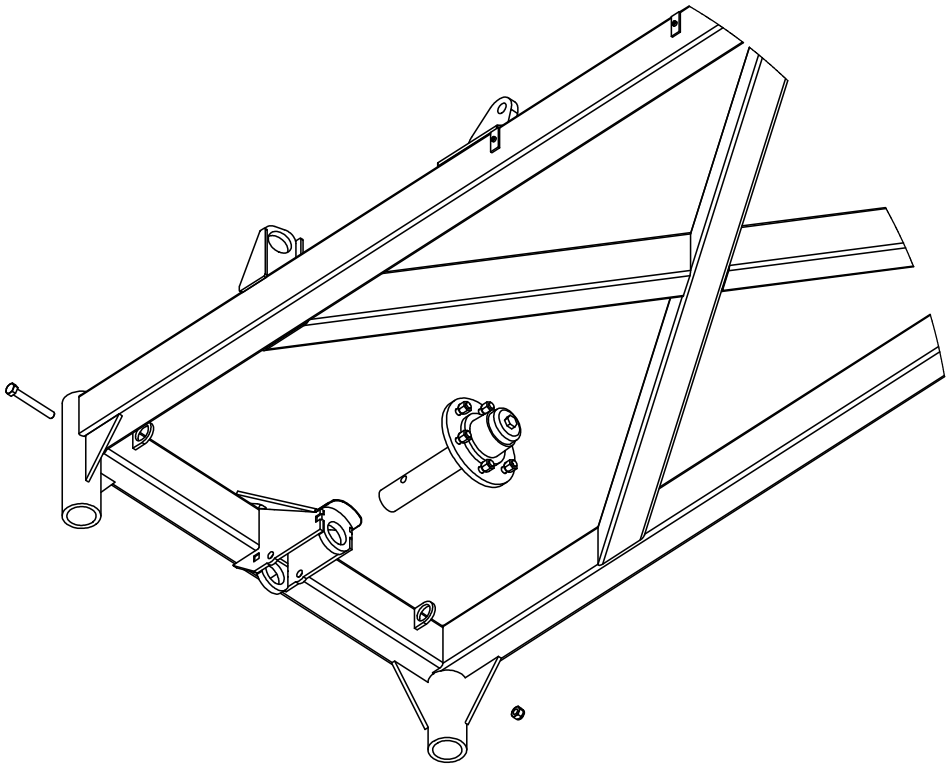
PART NUMBER	DESCRIPTION	QTY.
0733-SH275966205	2.75"R 6 Tonne on 205mm PCD Hub Complete	1
0211-20150	M20 x 150 8.8 zp Bolt	1
0221-NYL20	M20 Nyloc Nut	1

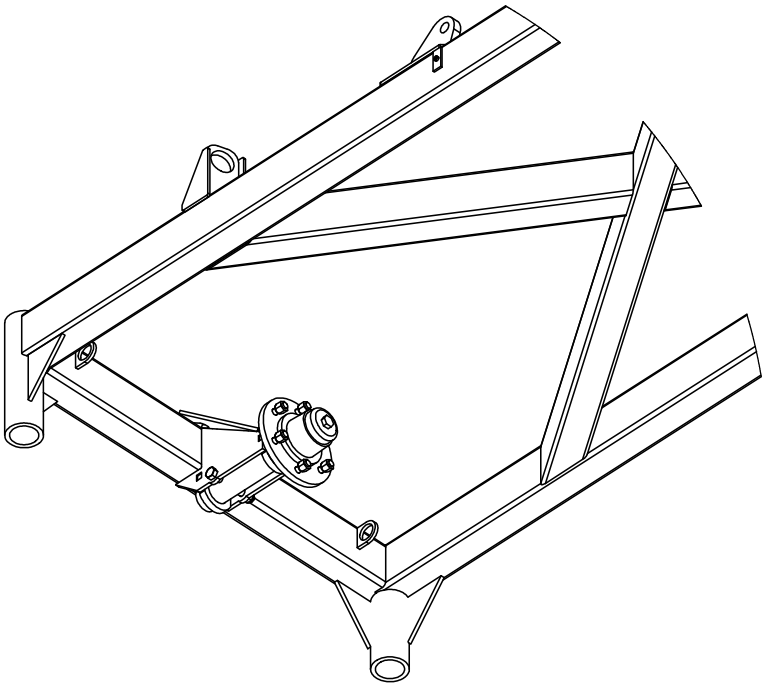


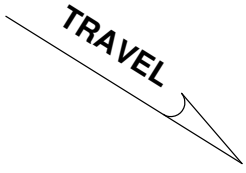


TRAVEL

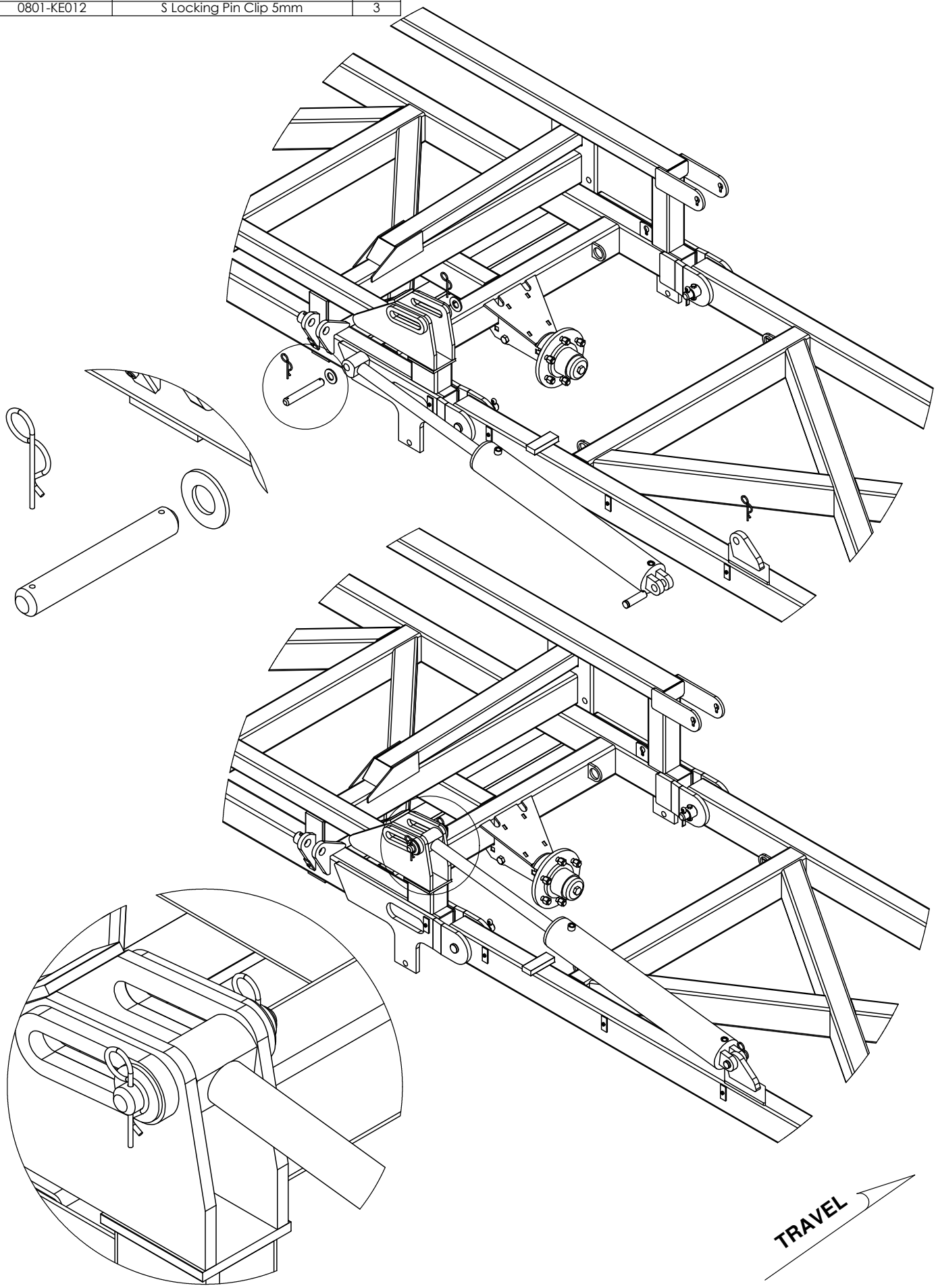
PART NUMBER	DESCRIPTION	QTY.
0733-SH275966205	2.75"R 6 Tonne on 205mm PCD Hub Complete	1
0211-20150	M20 x 150 8.8 zp Bolt	1
0221-NYL20	M20 Nyloc Nut	1



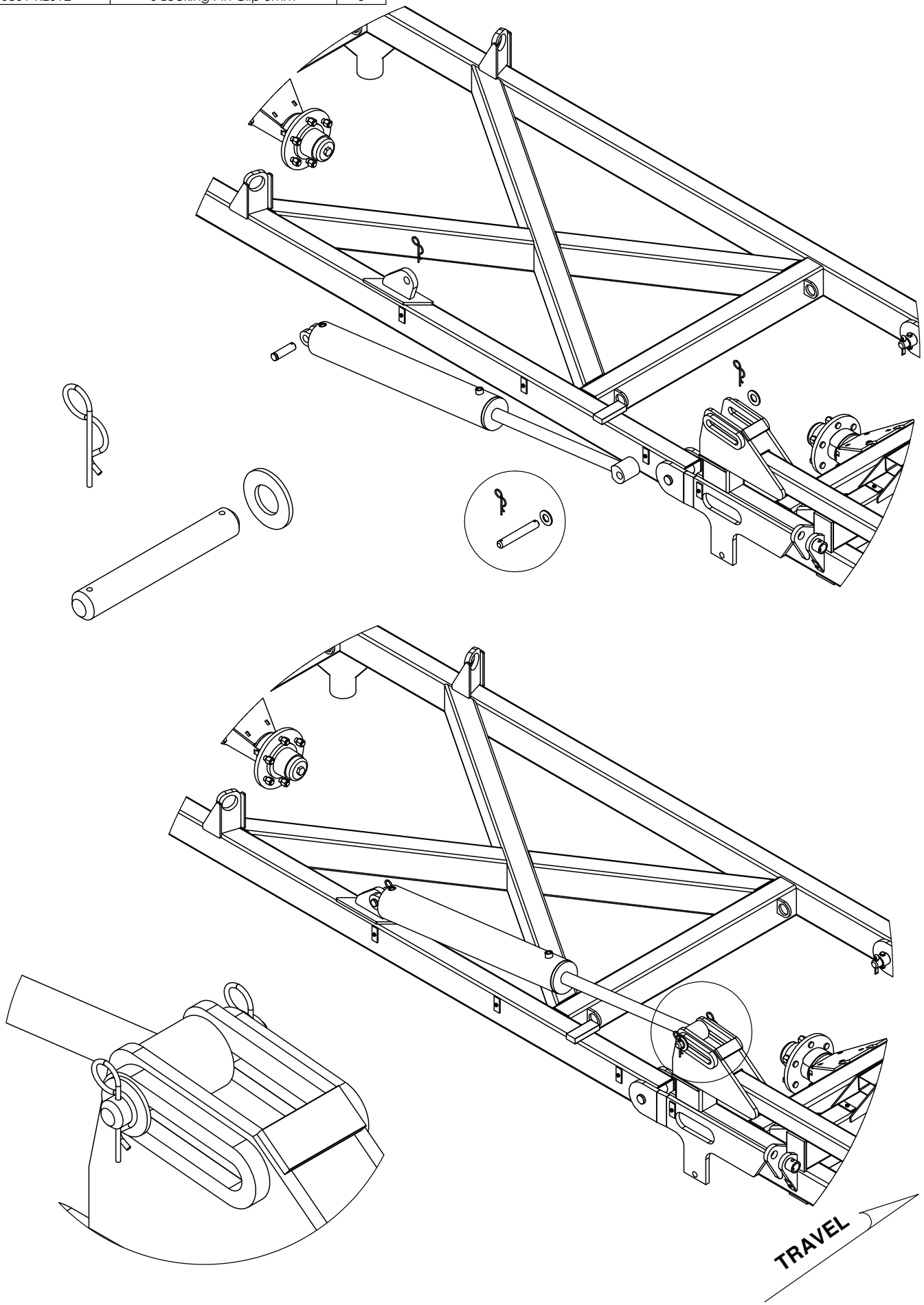




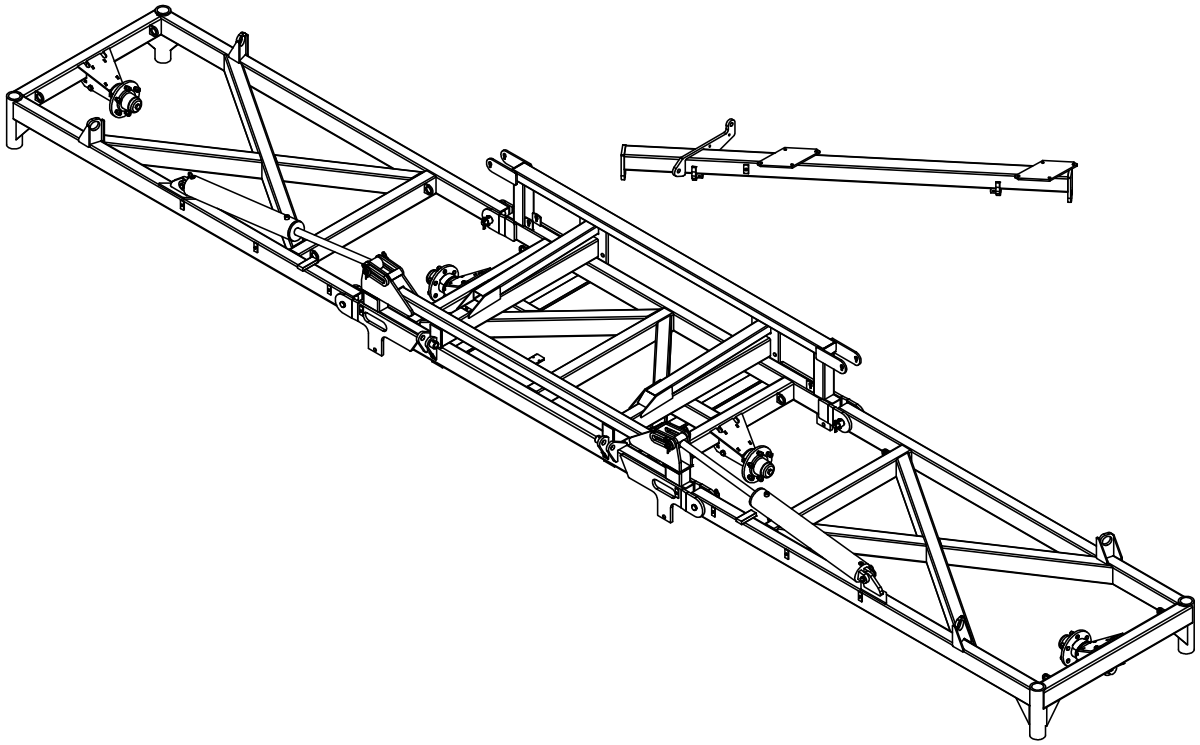
PART NUMBER	DESCRIPTION	QTY.
0311-5040	5" x 30" Hydraulic Cylinder	1
0801-44102956-1	Cylinder Pin 1 1/4" x 220mm 4140	1
0801-44102956-2	Cylinder Pin 1 1/4" x 116mm	1
0232-11-4 FW	Washer Flat 1 1/4"	2
0801-KE012	S Locking Pin Clip 5mm	3

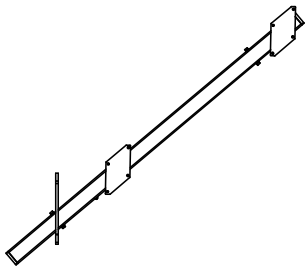


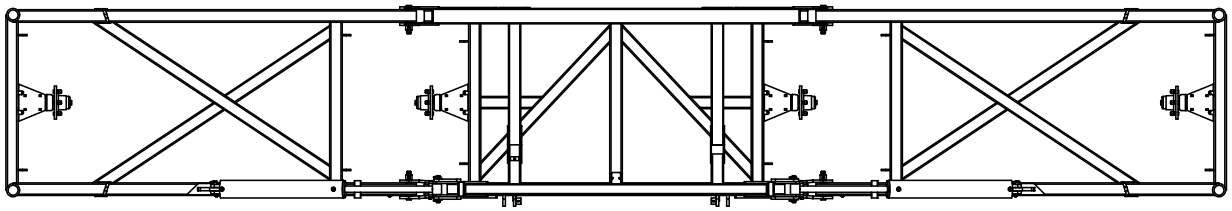
PART NUMBER	DESCRIPTION	QTY.
0311-5040	5" x 30" Hydraulic Cylinder	1
0801-44102956-1	Cylinder Pin 1 1/4" x 220mm 4140	1
0801-44102956-2	Cylinder Pin 1 1/4" x 116mm	1
0232-11-4 FW	Washer Flat 1 1/4"	2
0801-KE012	S Locking Pin Clip 5mm	3



PART NUMBER	DESCRIPTION	QTY.
0810-28-30	30' Front Module	1

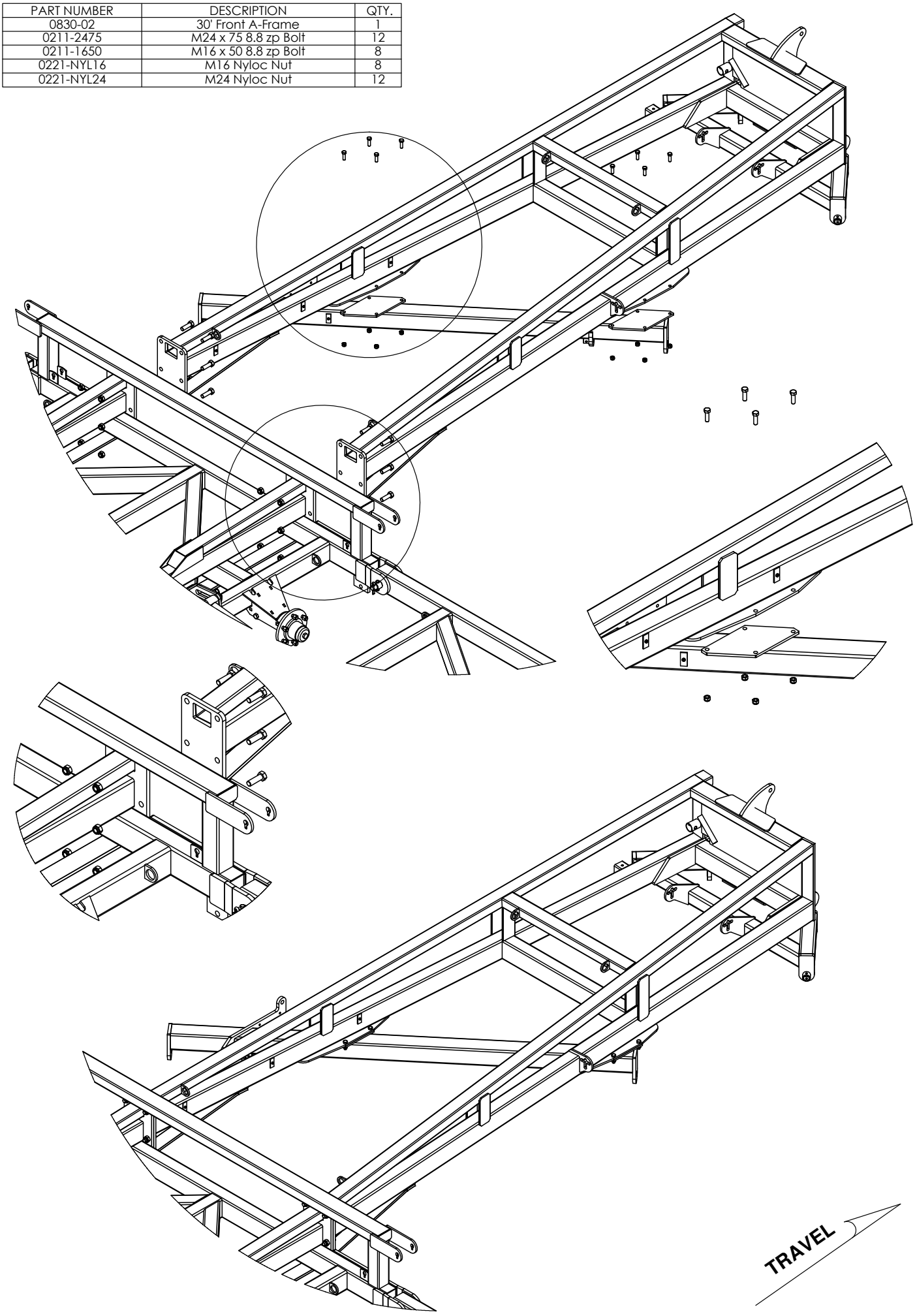




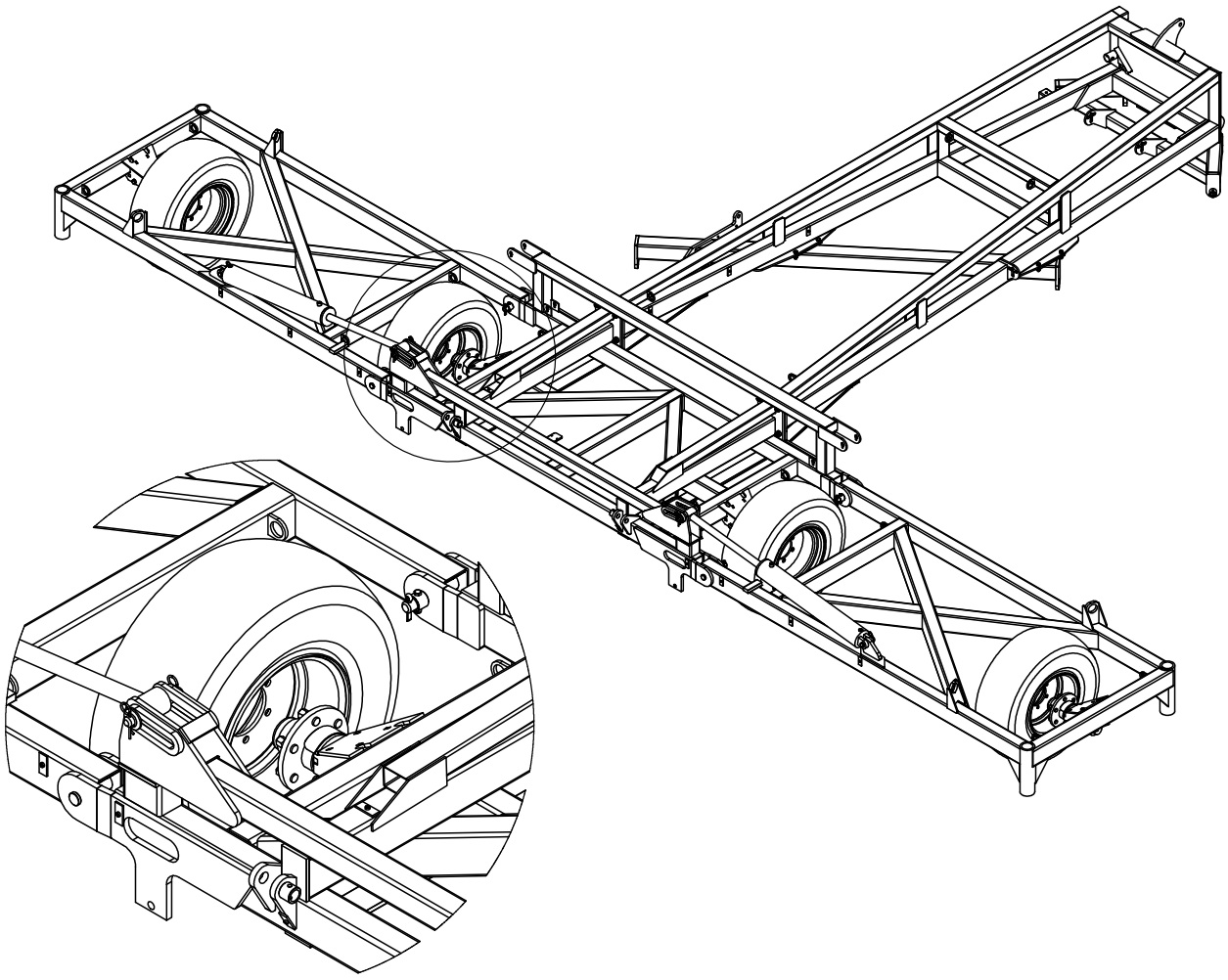


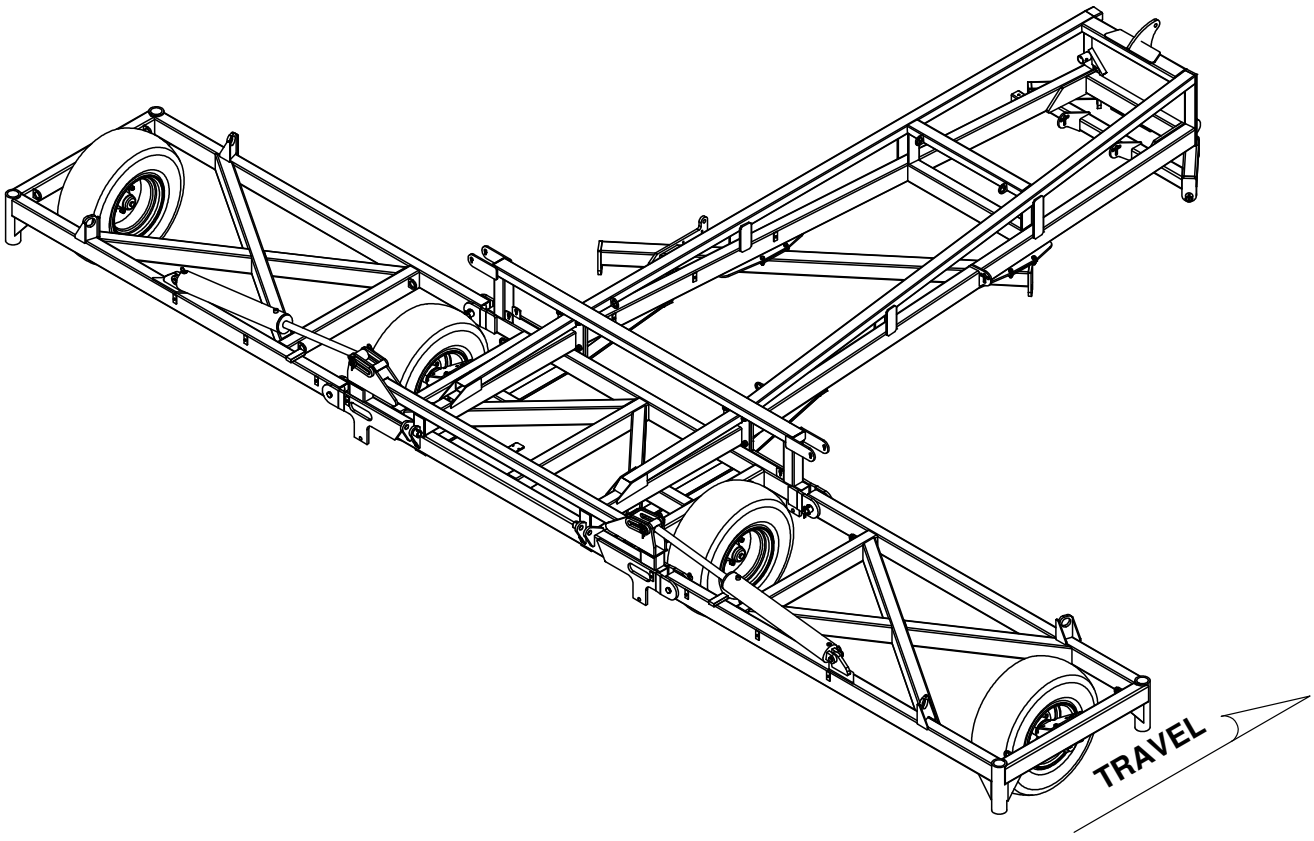
TRAVEL

PART NUMBER	DESCRIPTION	QTY.
0830-02	30' Front A-Frame	1
0211-2475	M24 x 75 8.8 zp Bolt	12
0211-1650	M16 x 50 8.8 zp Bolt	8
0221-NYL16	M16 Nyloc Nut	8
0221-NYL24	M24 Nyloc Nut	12

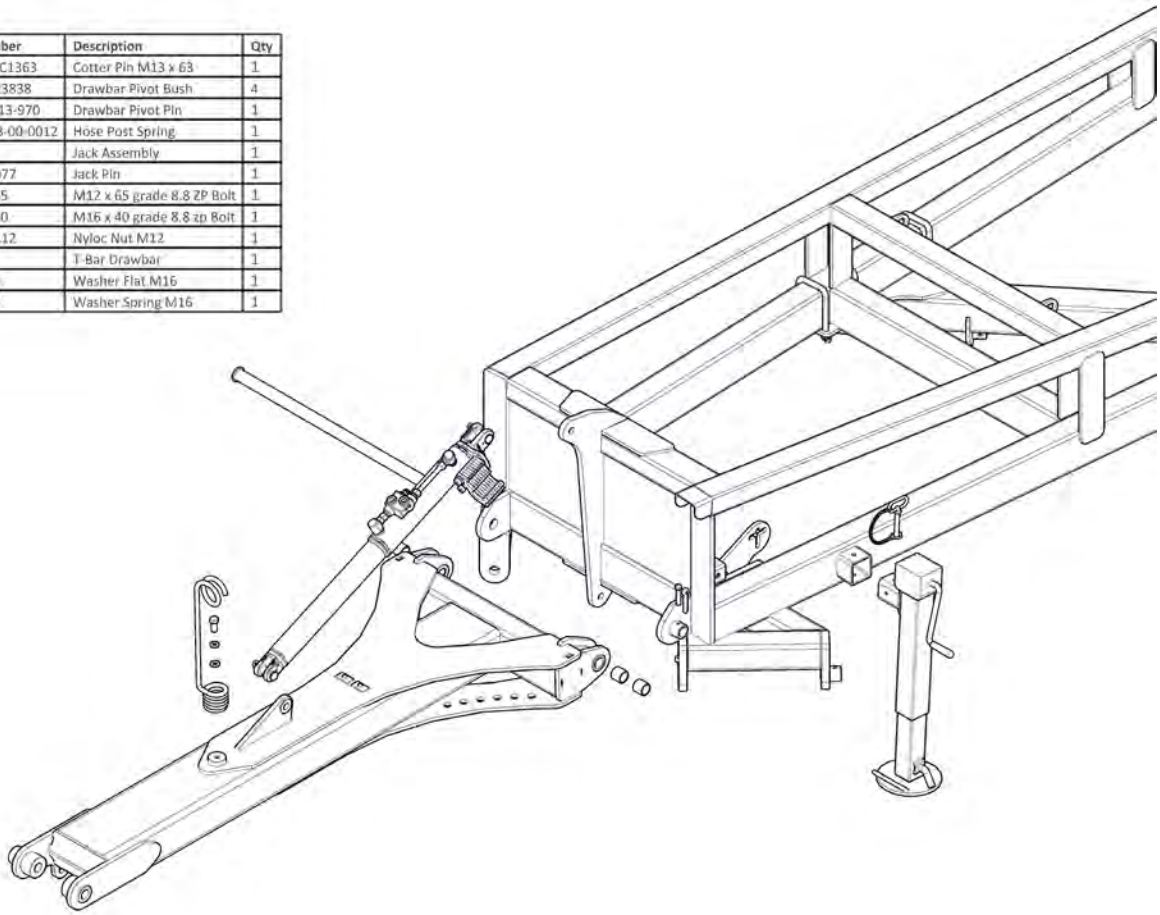


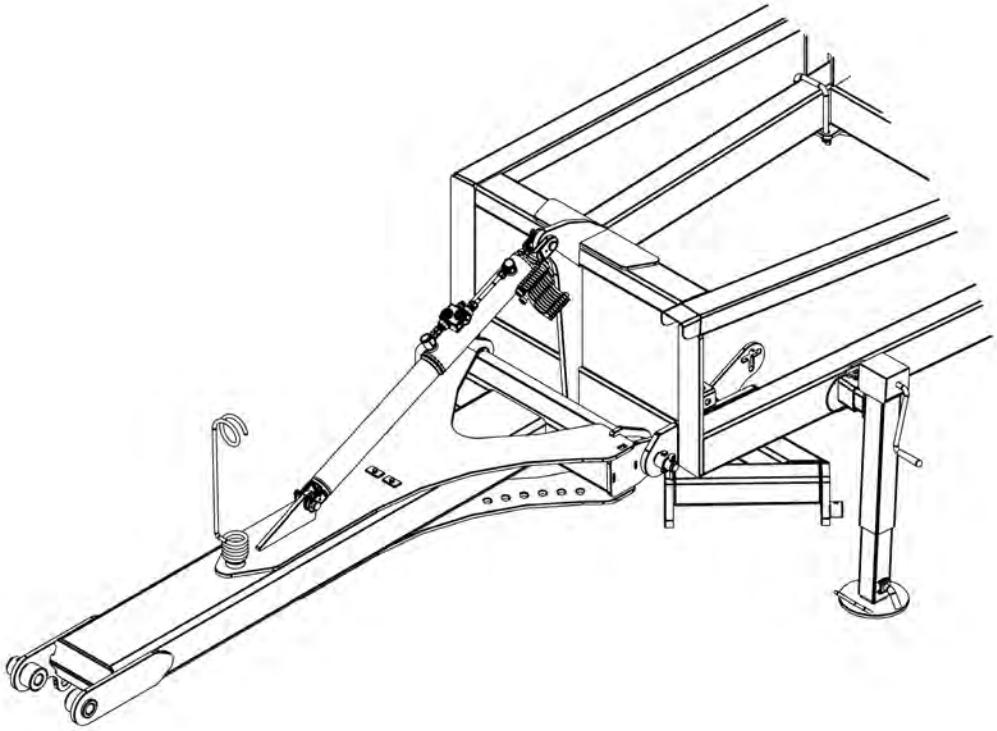
PART NUMBER	DESCRIPTION	QTY.
0751-15.0-70-18TR	15.0/70/18 Tyre and Rim Complete	4



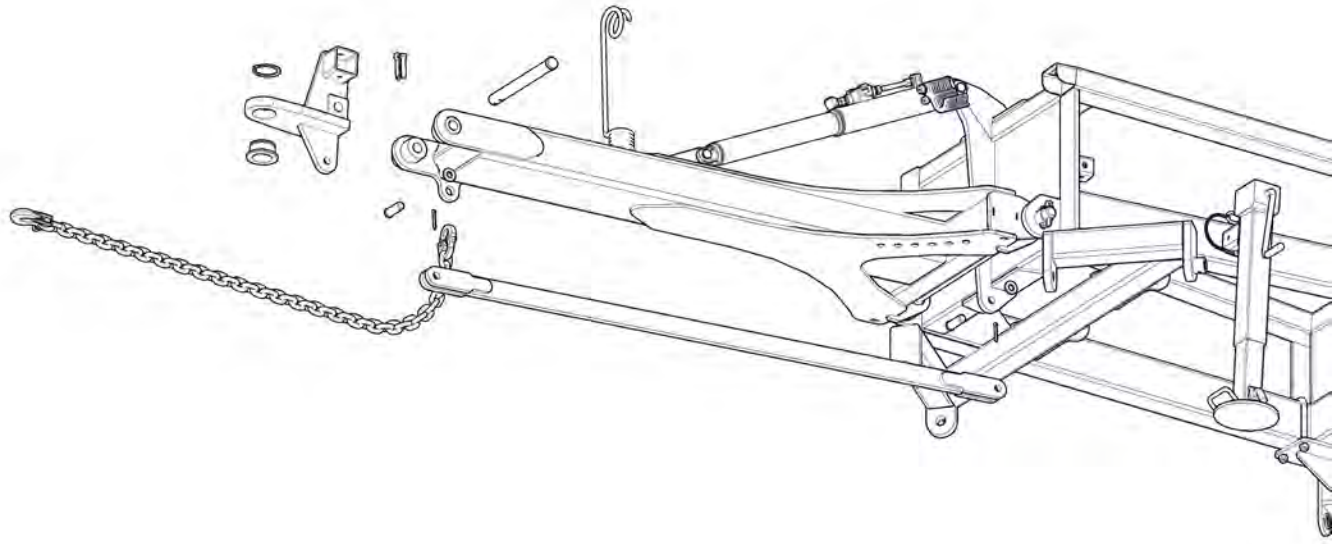


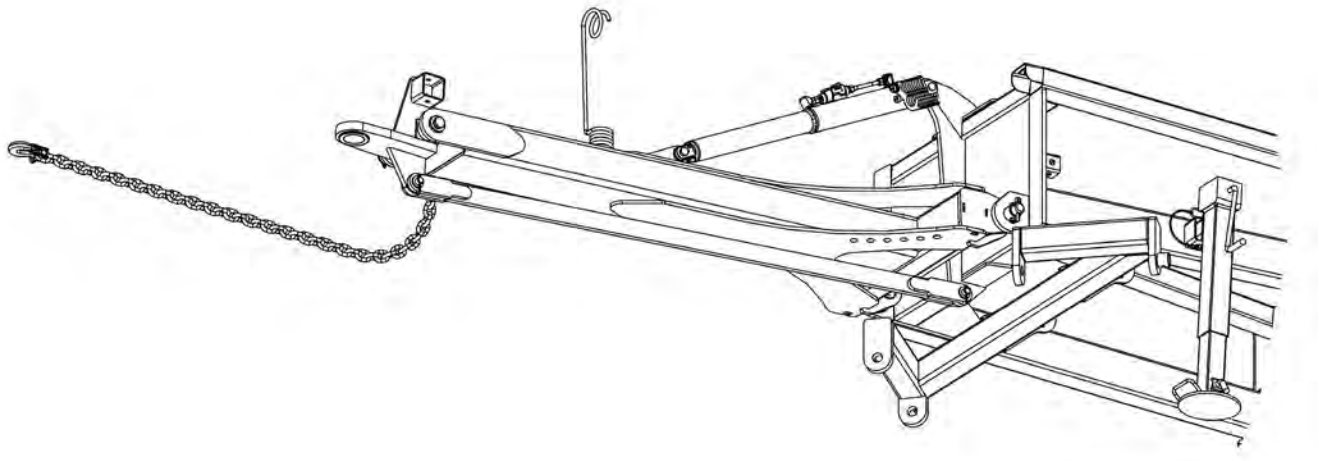
Part Number	Description	Qty
0261-PINC1363	Cotter Pin M13 x 63	1
0801-B423838	Drawbar Pivot Bush	4
0801-10-13-970	Drawbar Pivot Pin	1
1601-CDB-00-0012	Hose Post Spring	1
0810-31	Jack Assembly	1
0801-B3077	Jack Pin	1
0211-1265	M12 x 65 grade 8.8 ZP Bolt	1
0211-1640	M16 x 40 grade 8.8 zp Bolt	1
0221-NYL12	Nyloc Nut M12	1
1530-08	T-Bar Drawbar	1
0231-F16	Washer Flat M16	1
0231-S16	Washer Spring M16	1



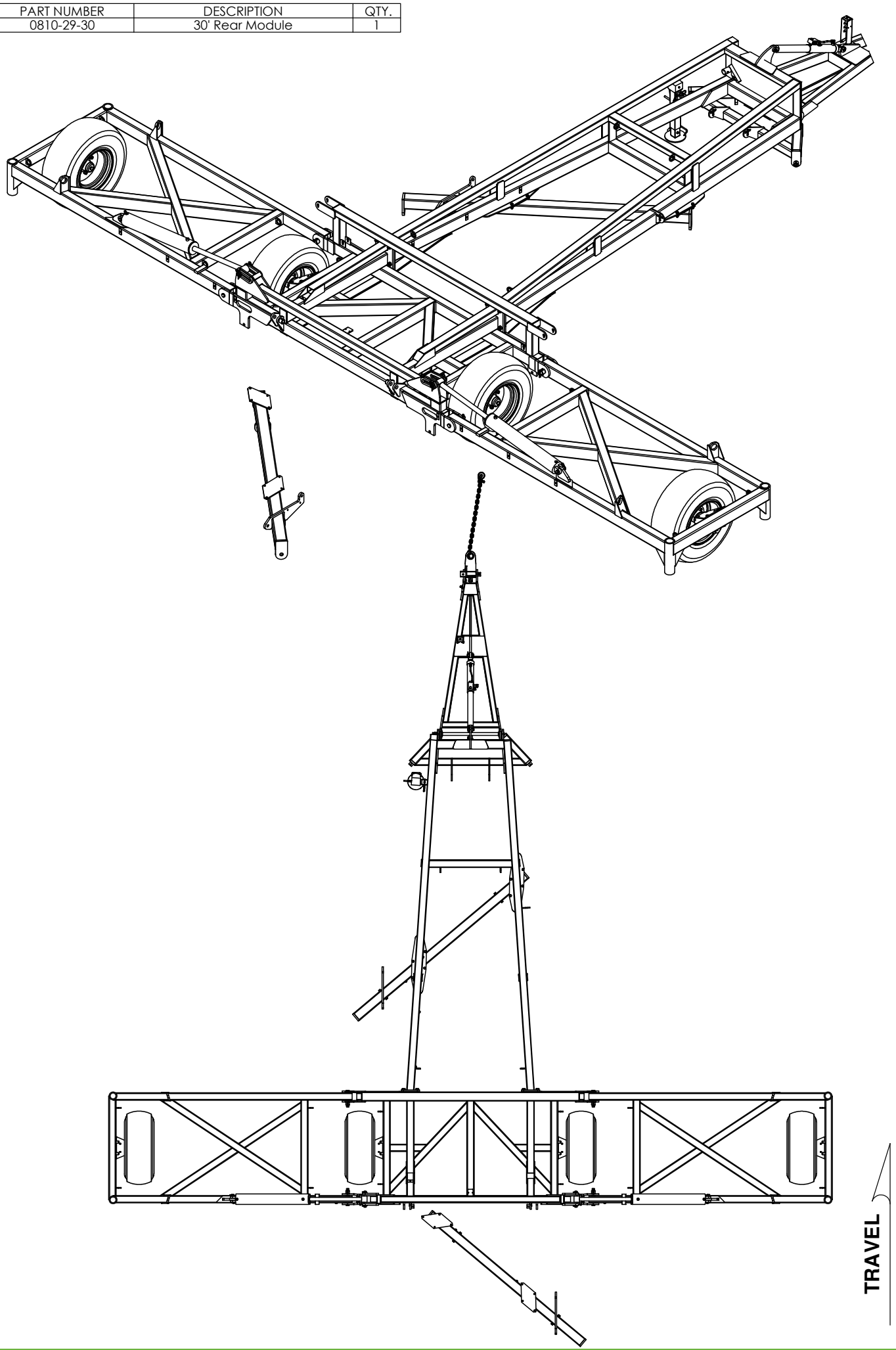


Part Number	Description	Qty
0172-D1400-0820	Circlip External 82mm	1
0211-1275	M12 x 75 grade 8.8 ZP Bolt	1
0221-NYL12	Nyloc Nut M12	1
0231-F24	Washer Flat M24	2
0261-PINC1363	Cotter Pin M13 x 63	1
0261-PINC650	Cotter Pin M6 x 50mm	2
0801-KE-0905-1-B	Hardened Tow Hitch Bush 2 1/4"	1
0801-KE0307-1	Clevis Pin 25mm x 75mm	2
0810-09	Tow Hitch	1
0810-16	Safety Chain Assembly	1
0810-22	Parallel Arm	1
1601-P35-370	Drawbar Tow Hitch Pin	1

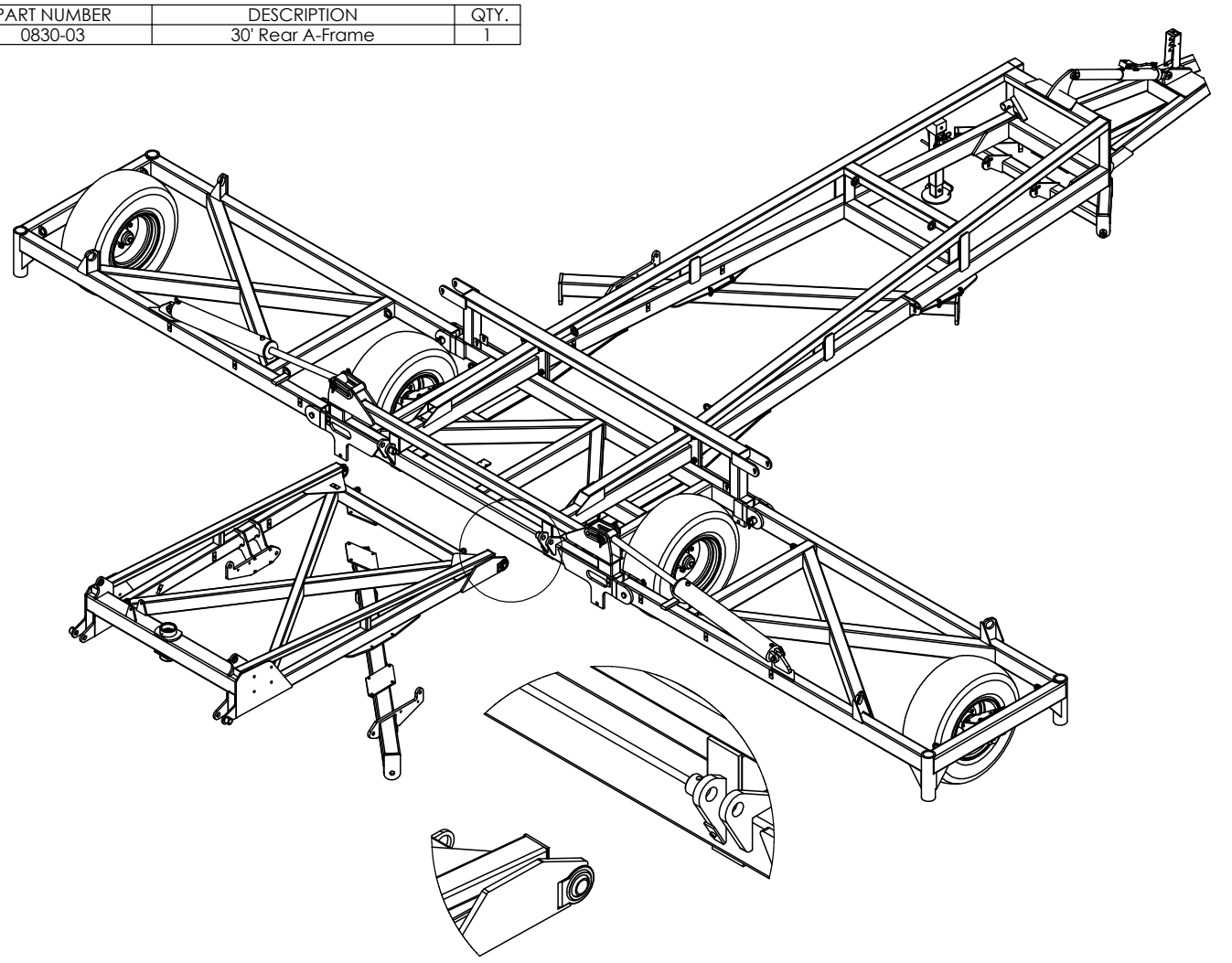


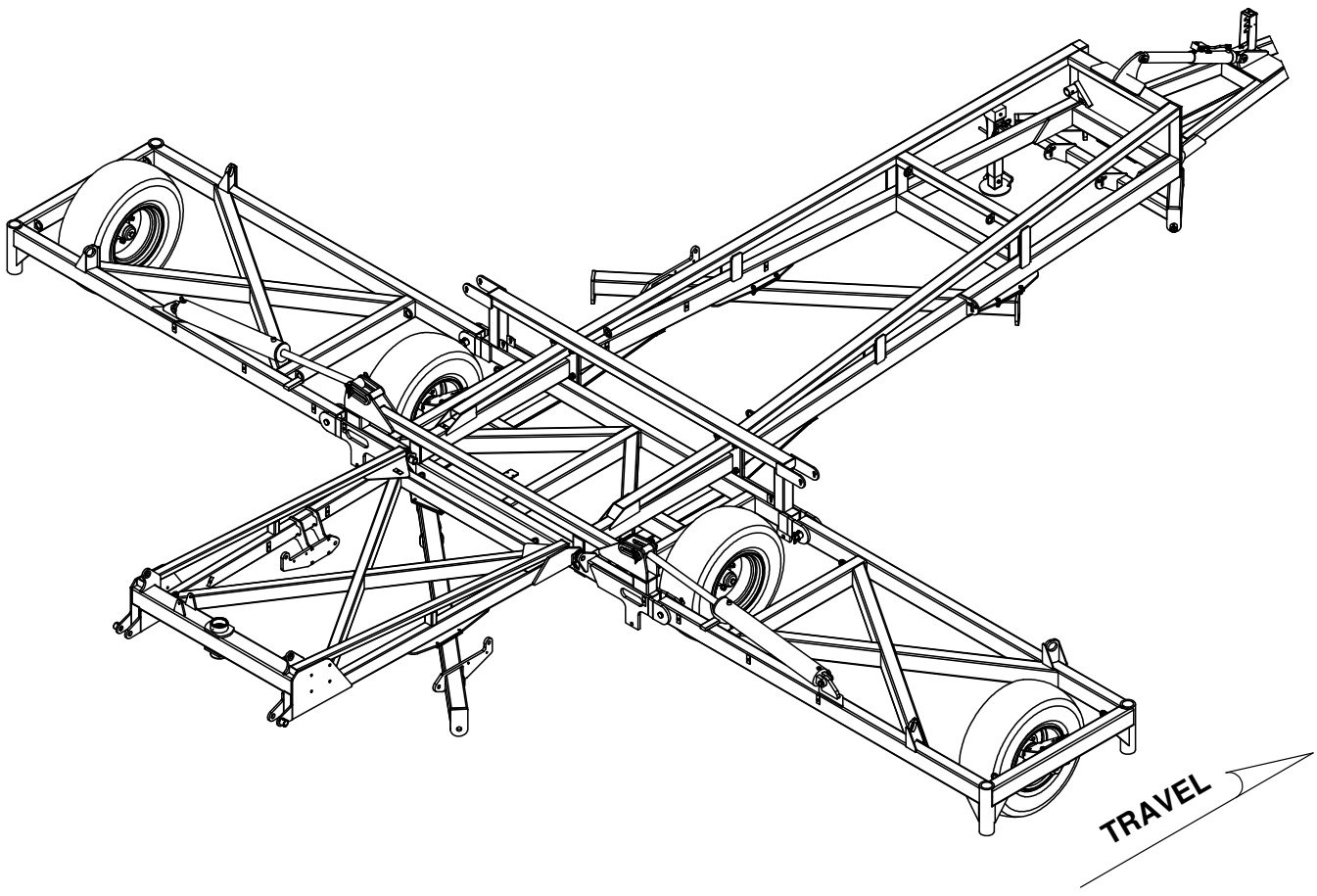


PART NUMBER	DESCRIPTION	QTY.
0810-29-30	30' Rear Module	1

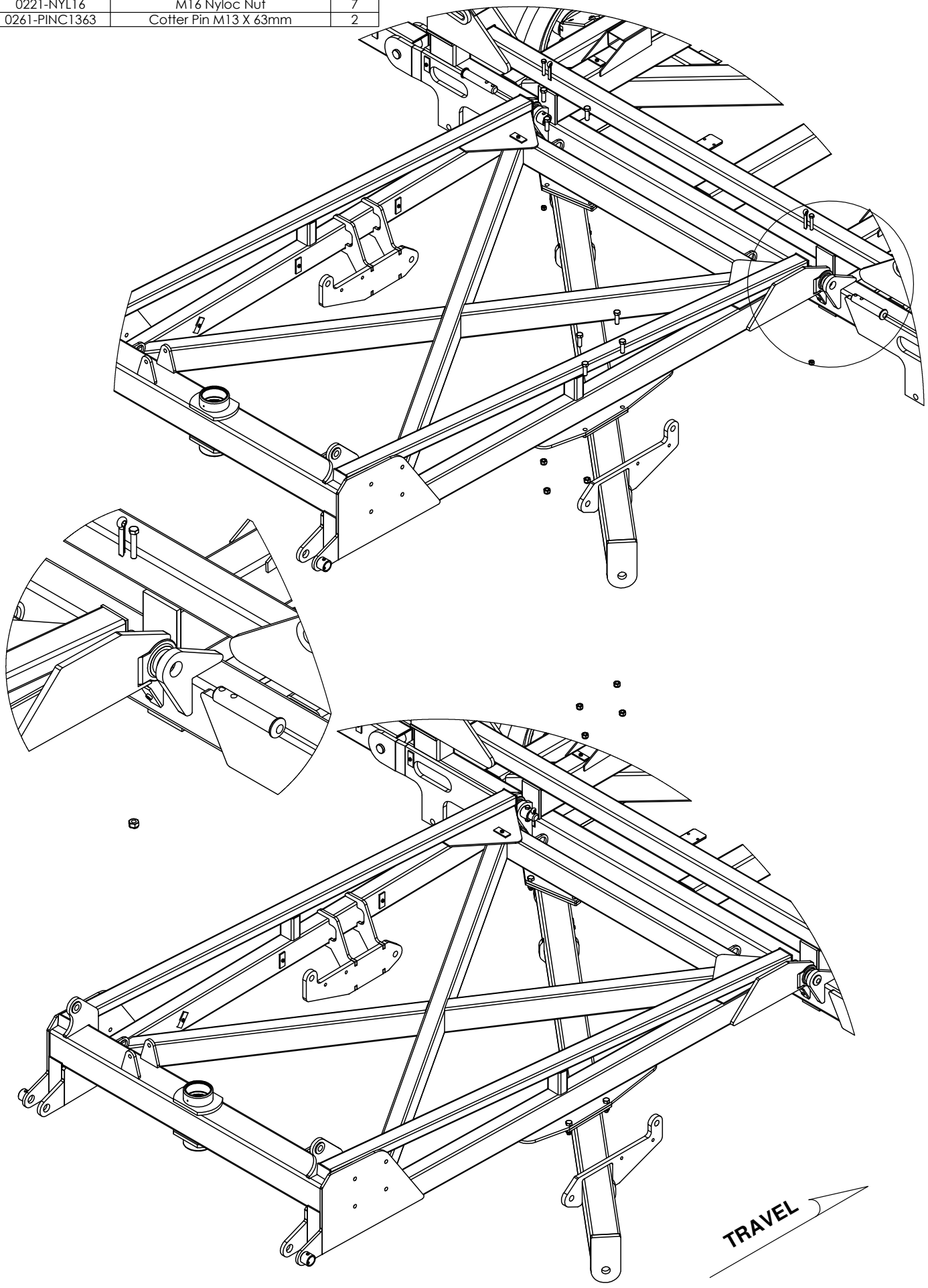


PART NUMBER	DESCRIPTION	QTY.
0830-03	30' Rear A-Frame	1

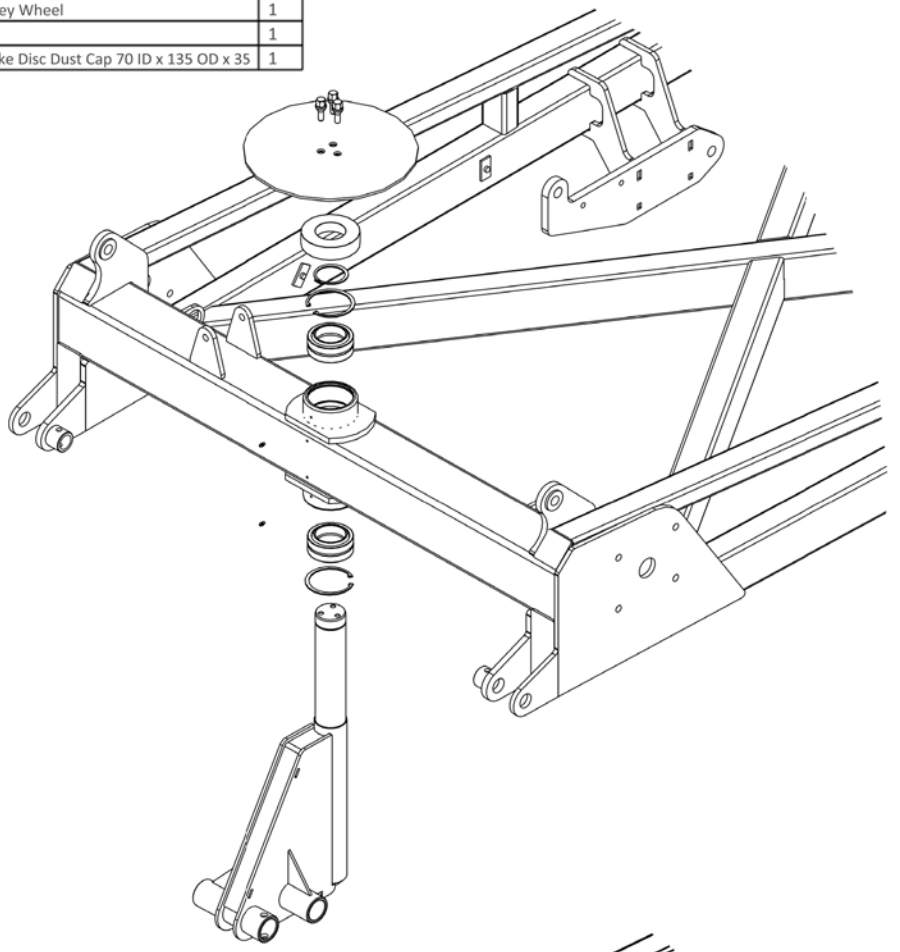


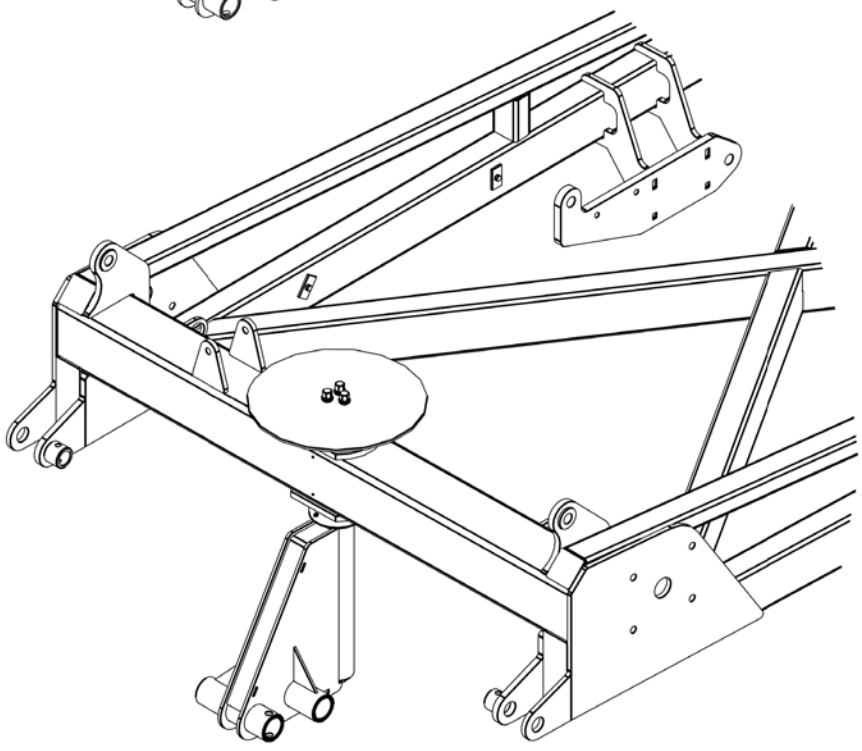


PART NUMBER	DESCRIPTION	QTY.
0801-10-08-175	Tail Frame Pivot pin	2
0211-1265	M12 x 65 8.8 zp Bolt	2
0221-NYL12	M12 Nyloc Nut	2
0211-1650	M16 x 50 8.8 zp Bolt	7
0221-NYL16	M16 Nyloc Nut	7
0261-PINC1363	Cotter Pin M13 X 63mm	2

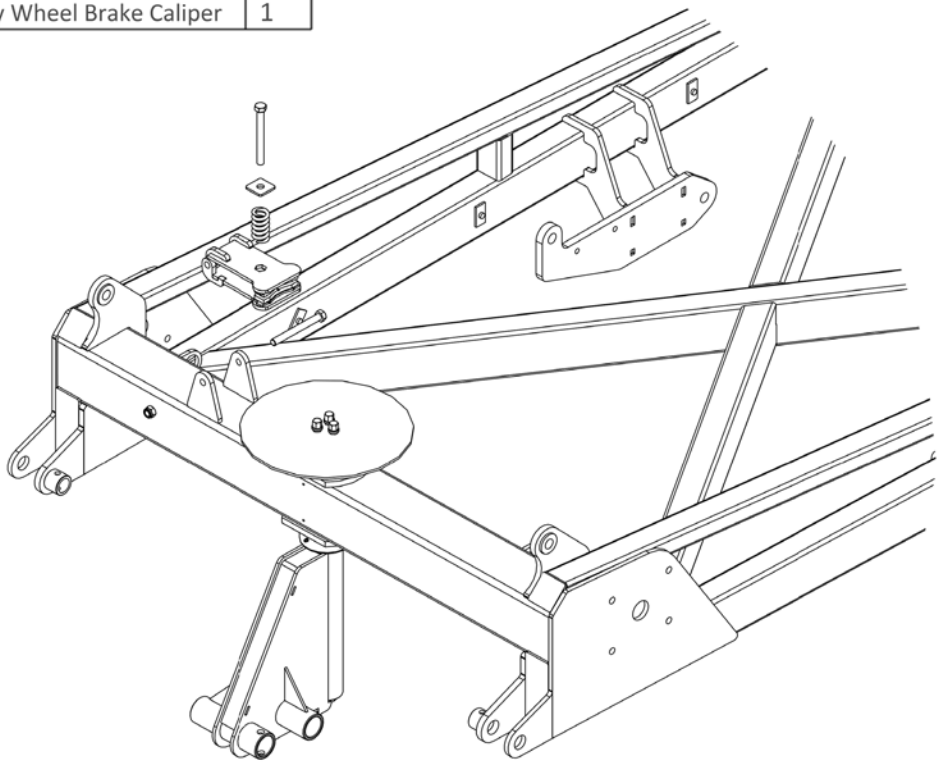


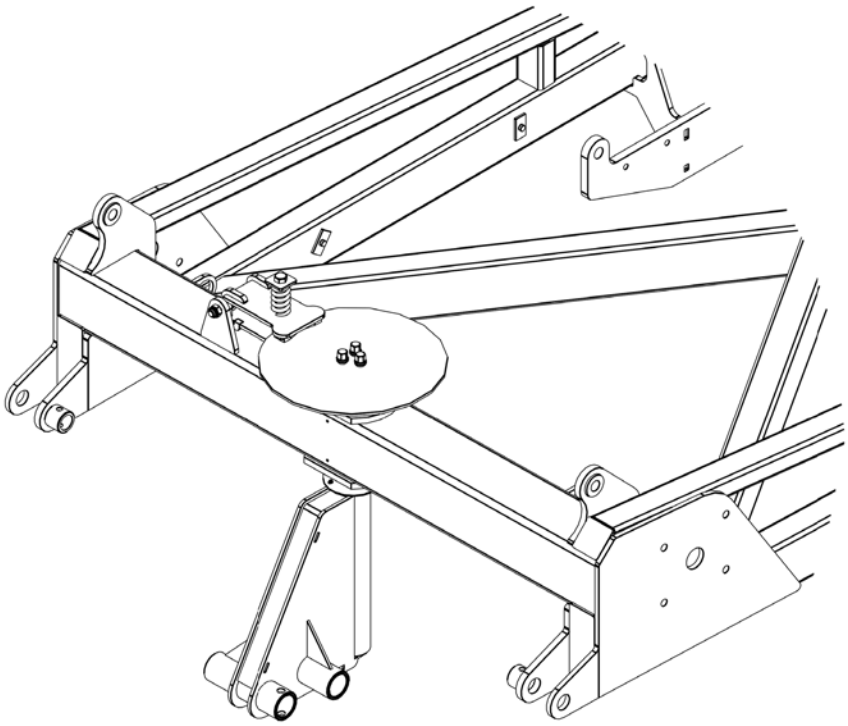
Part Number	Description	Qty
0113-GE70DO-2RS	Plain Spherical Bearing 70mm	2
0171-J105	Circlip Internal 105mm	2
0172-D1400-70	Circlip External 70mm	1
0181-GN1-4	Grease Nipple 1/4" UNF	2
0216-WB1224	M12 x 24 Wheel Bolt	3
0810-11-70	70mm Jockey Wheel	1
1600-405	Brake Disc	1
1601-DC7013535	Bolt on Brake Disc Dust Cap 70 ID x 135 OD x 35	1



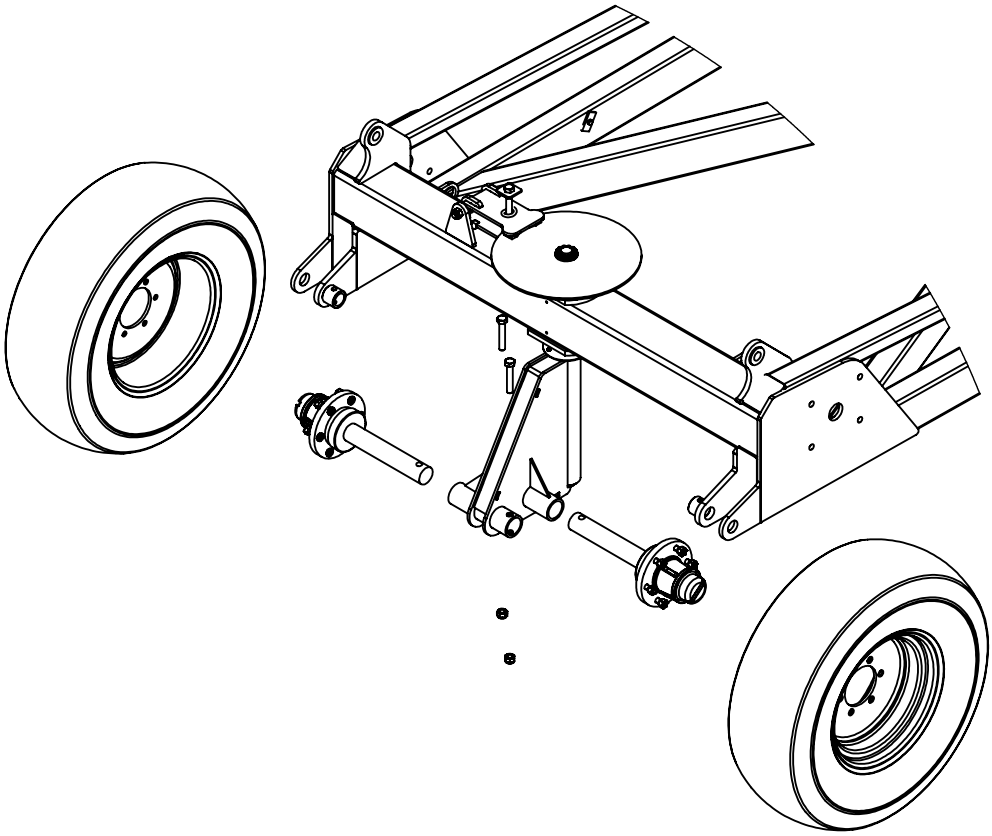


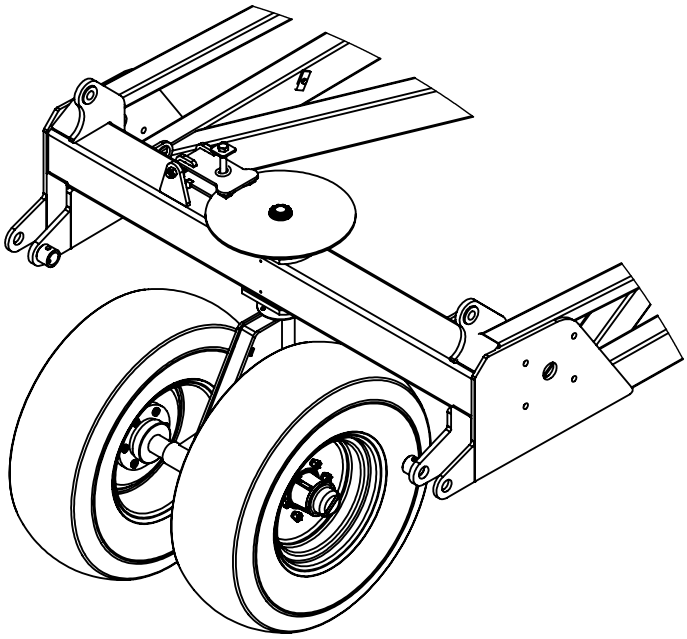
Part Number	Description	Qty
0211-16150	M16 x 150 grade 8.8 zp Bolt	2
0221-NYL16	Nyloc Nut M16	1
0231-SQ16505	Washer Square M16 x 50 x 5	1
0801-KE009	Brake Compression Spring	1
0810-12CAL	Jockey Wheel Brake Caliper	1





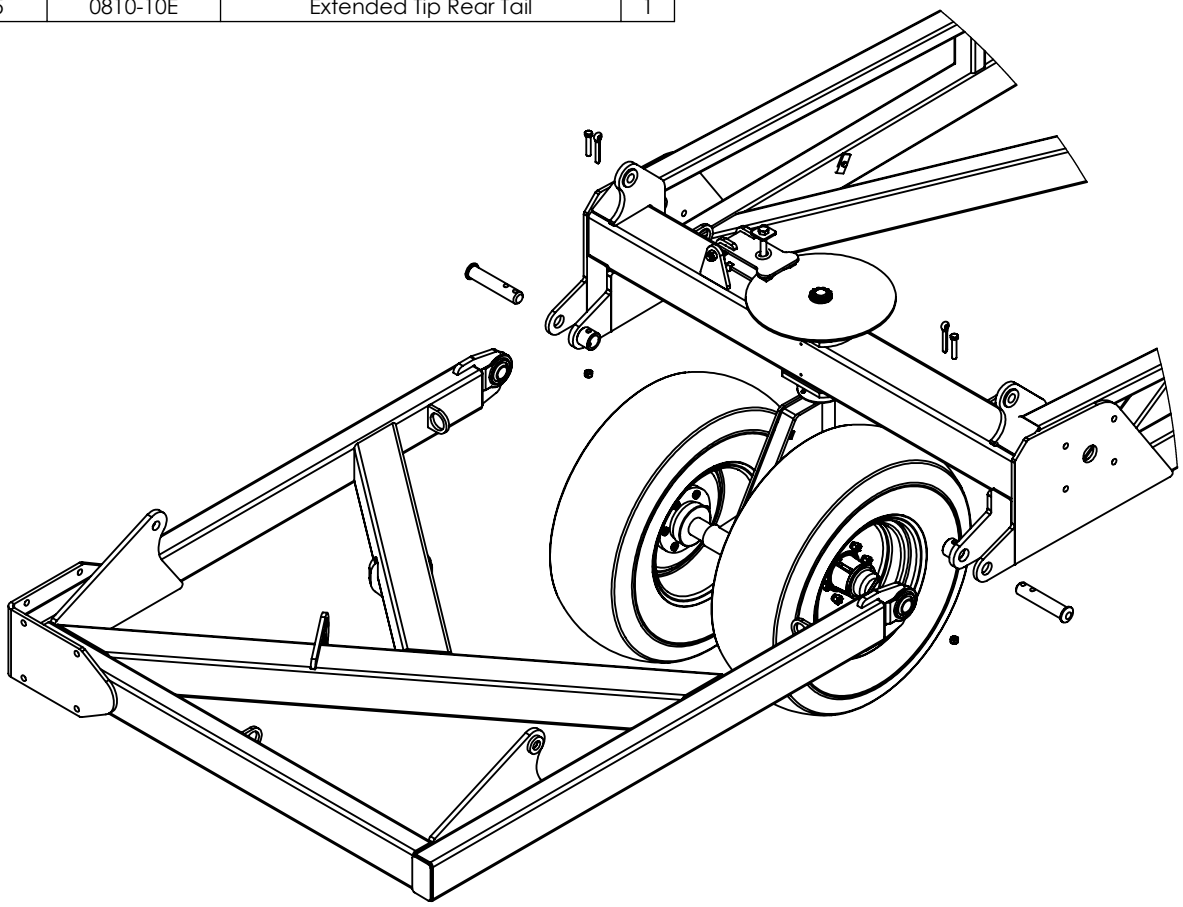
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	0211-1690	M16 x 90 grade 8.8 zp Bolt	2
2	0221-NYL16	Nyloc Nut M16	2
3	0733-K5083T66S	Axle 2"R 3T 6 on 6" PCD 330 OHF	2
4	0751-11L15	11L15 F3 Tyre on 6 on 6" Stud Rim	2

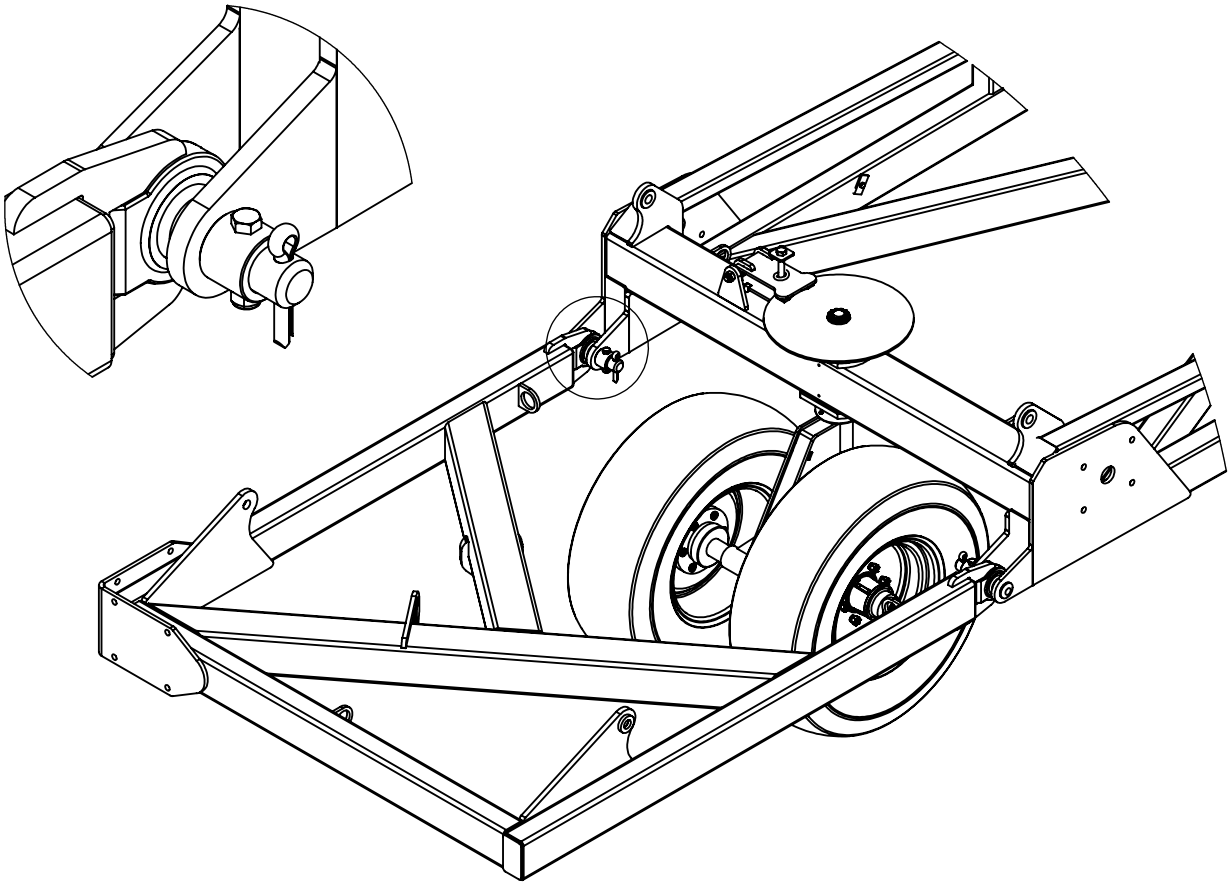




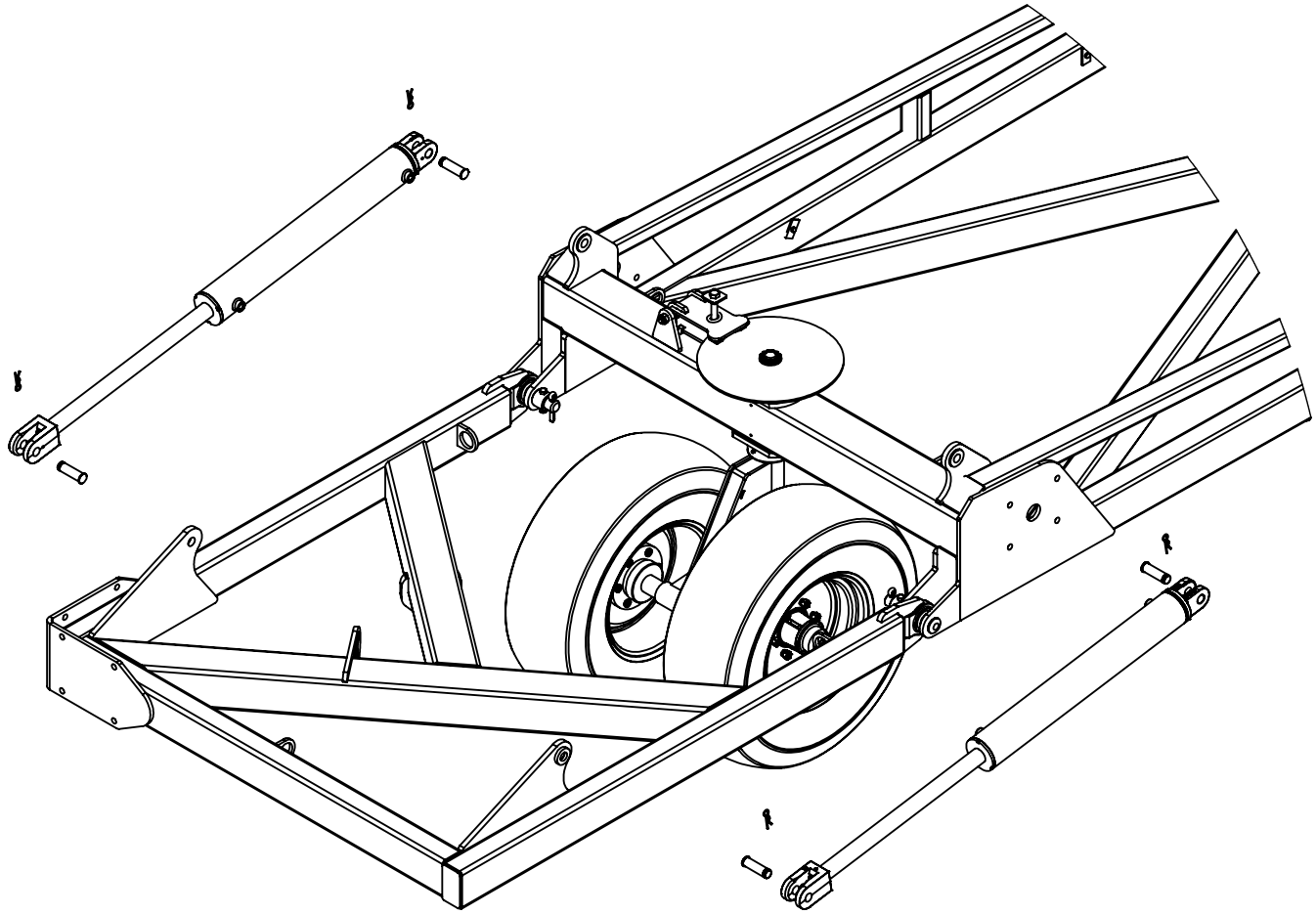
TRAVEL

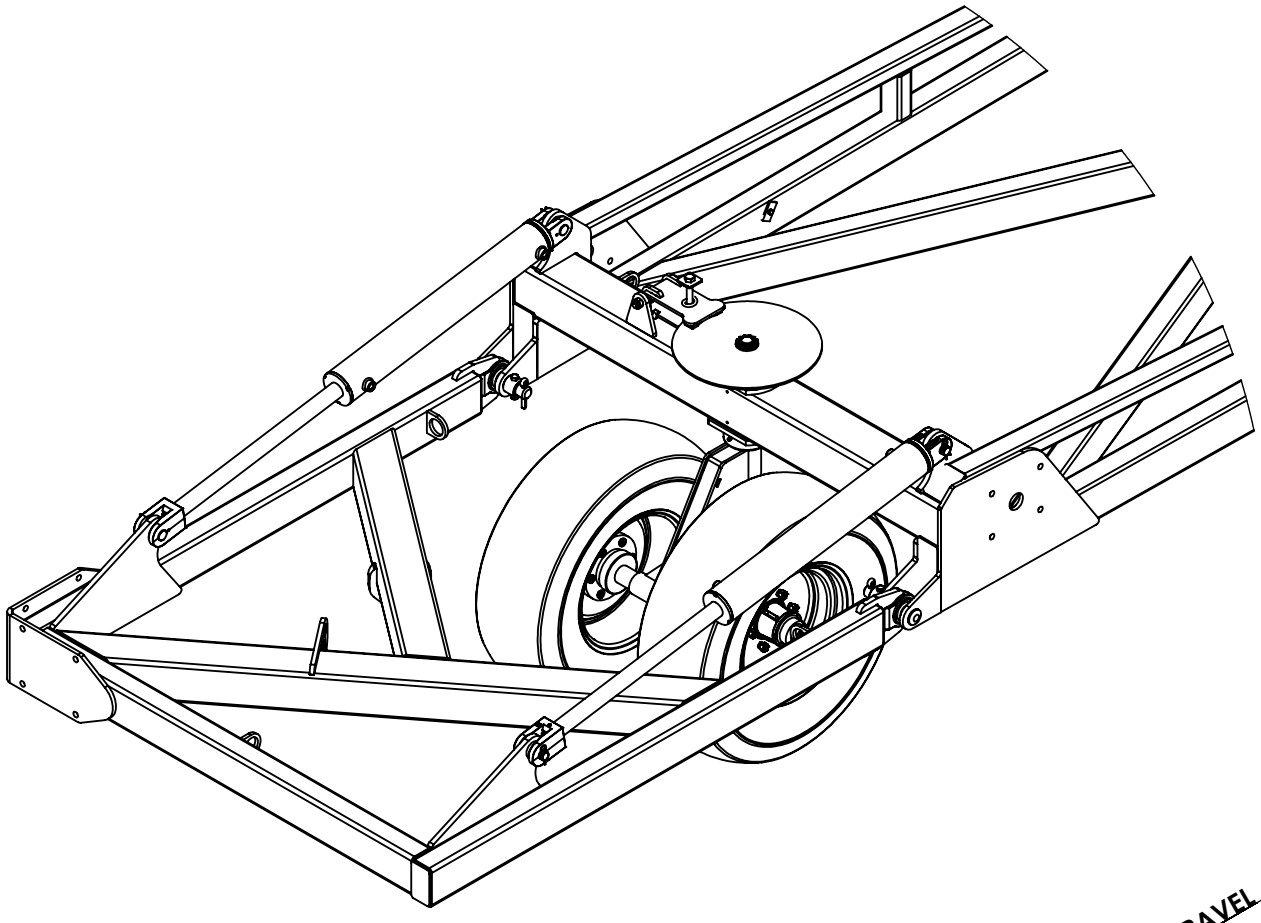
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	0211-1265	M12 x 65 grade 8.8 ZP Bolt	2
2	0221-NYL12	Nyloc Nut M12	2
3	0261-PINC1363	Cotter Pin M13 x 63	2
4	0801-10-08-175	Tail Frame Pivot pin	2
5	0810-10E	Extended Tip Rear Tail	1



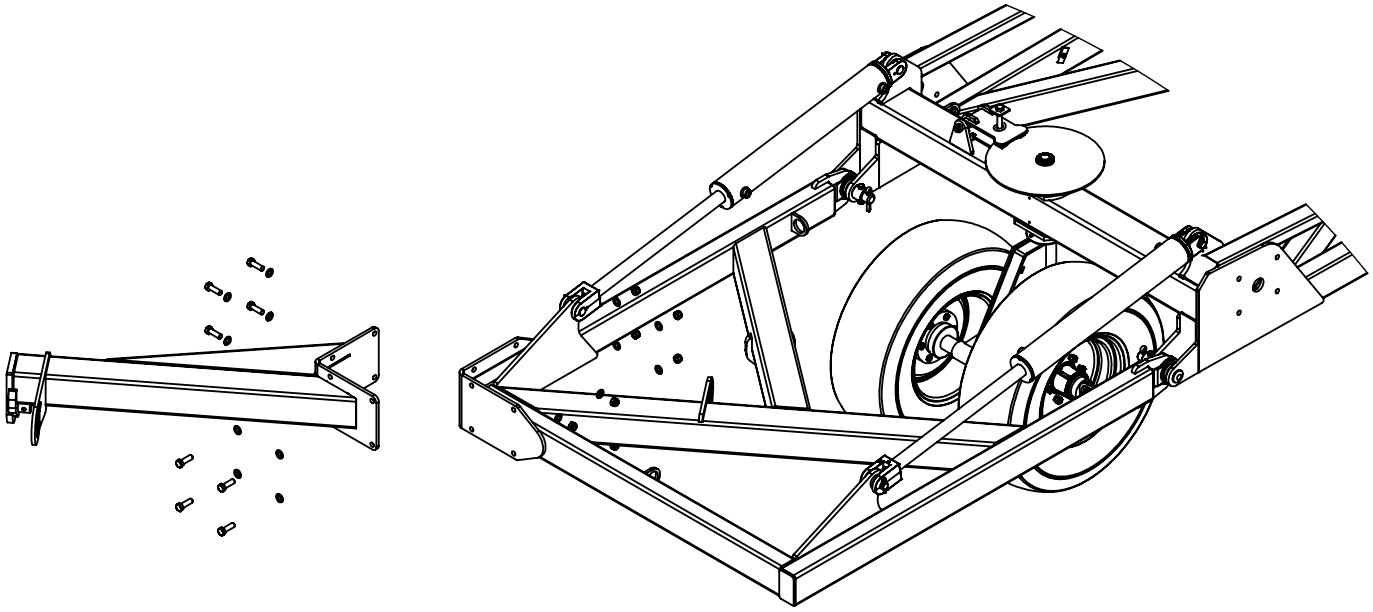


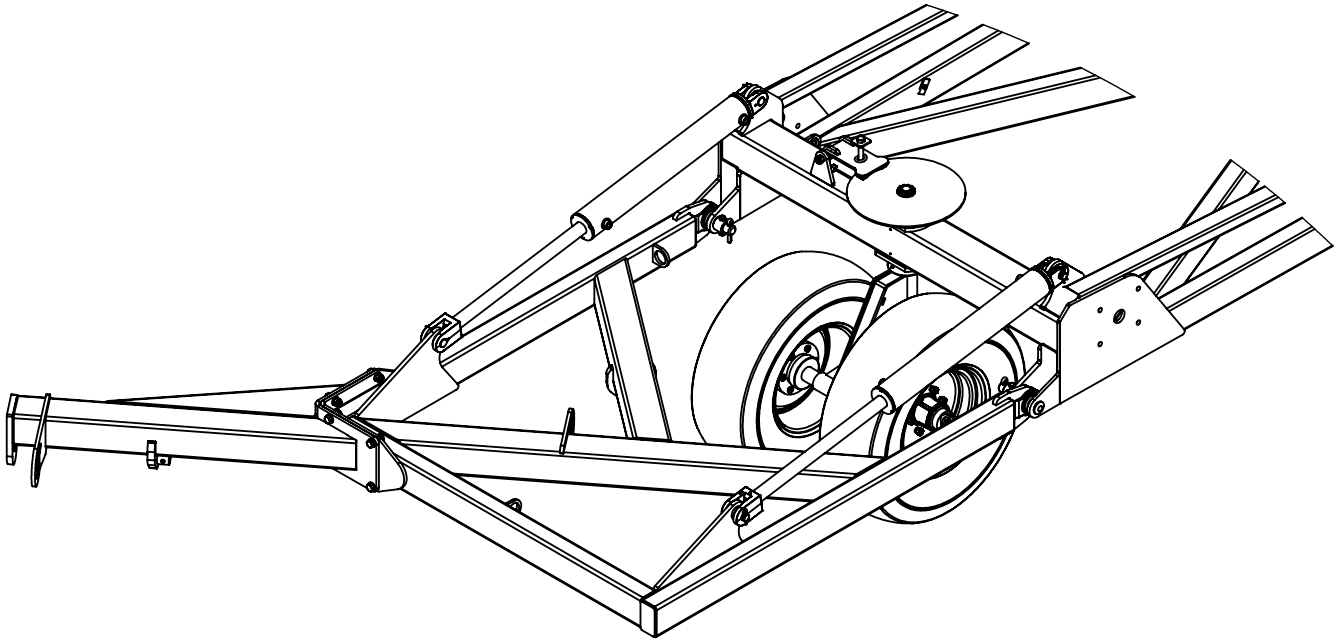
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	0311-3524SP	3.5" Bore 24" Stroke 1.75" Rod Hydraulic Cylinder	2



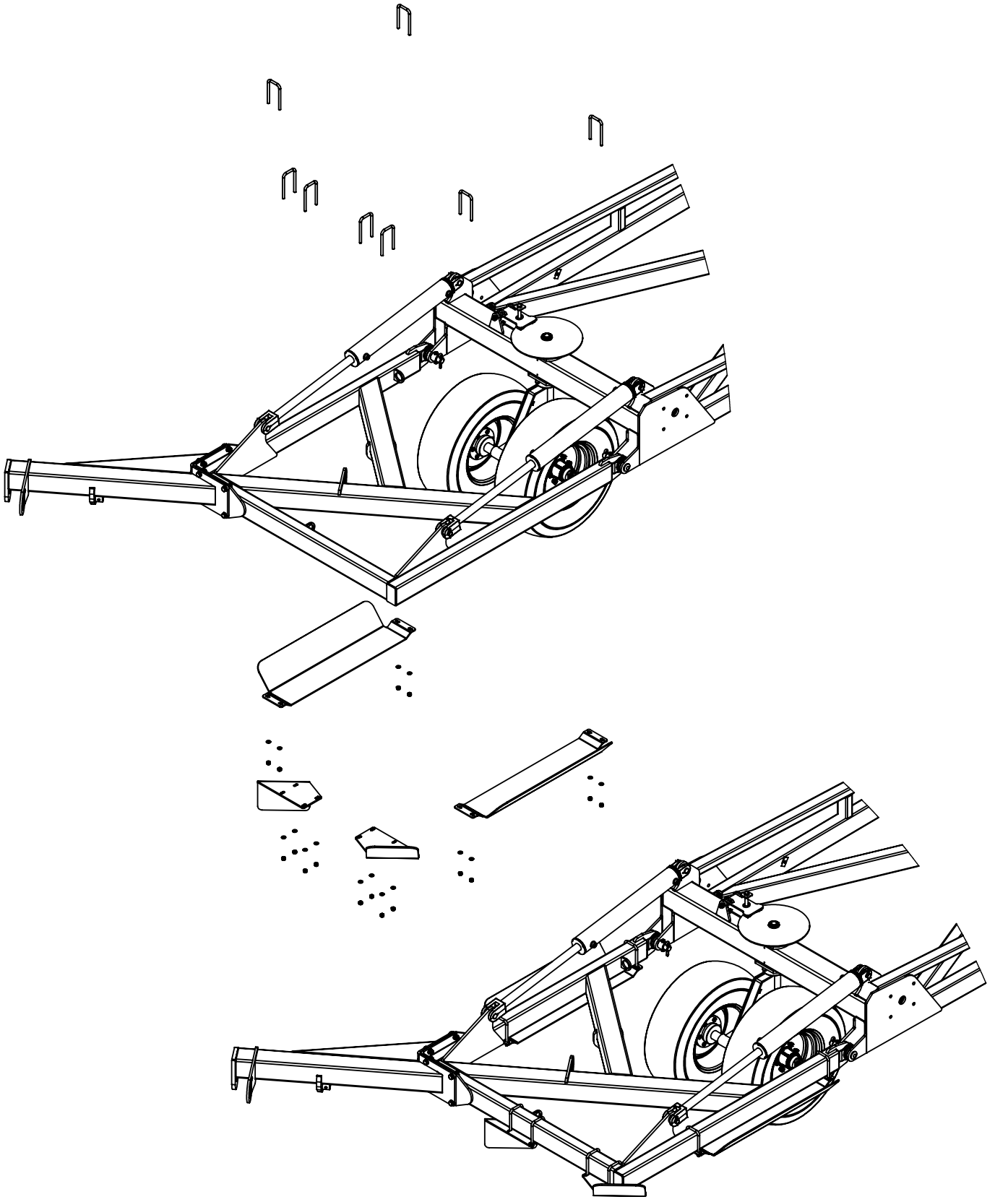


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	0211-1650	M16 x 50 grade 8.8 zp Bolt	8
2	0221-NYL16	Nyloc Nut M16	8
3	0231-F16	Washer Flat M16	16
4	0810-10ET	Extended Tip Tail Bolt On Tip	1

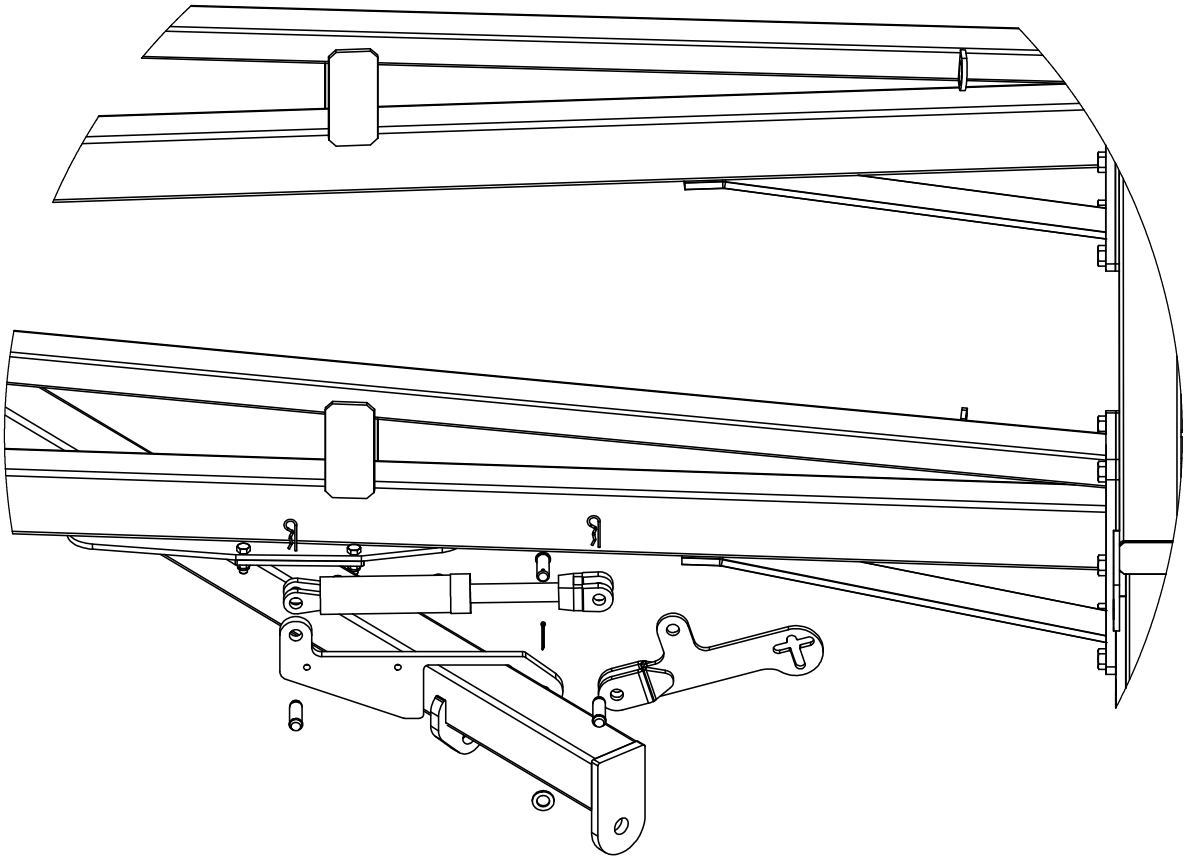


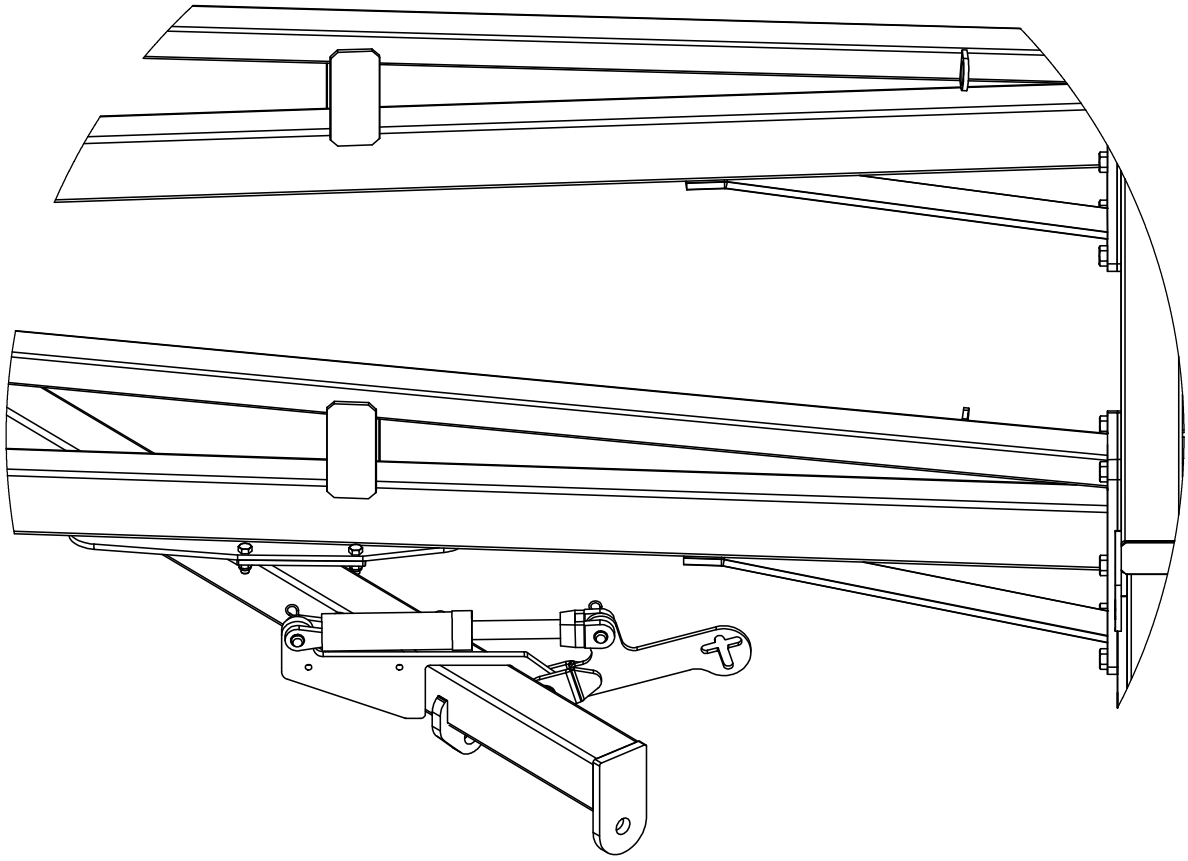


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	0221-NYL12	Nyloc Nut M12	16
2	0231-F12	Washer Flat M12	16
3	0271-1215577	U-Bolt M12 x 155 Deep x 77 Wide	8
4	0800-220.1	Tail Chain Stop Guard	1
5	0800-235	Rear Tail Guard	2
6	0800-498	Angled Chain Gaurd	1



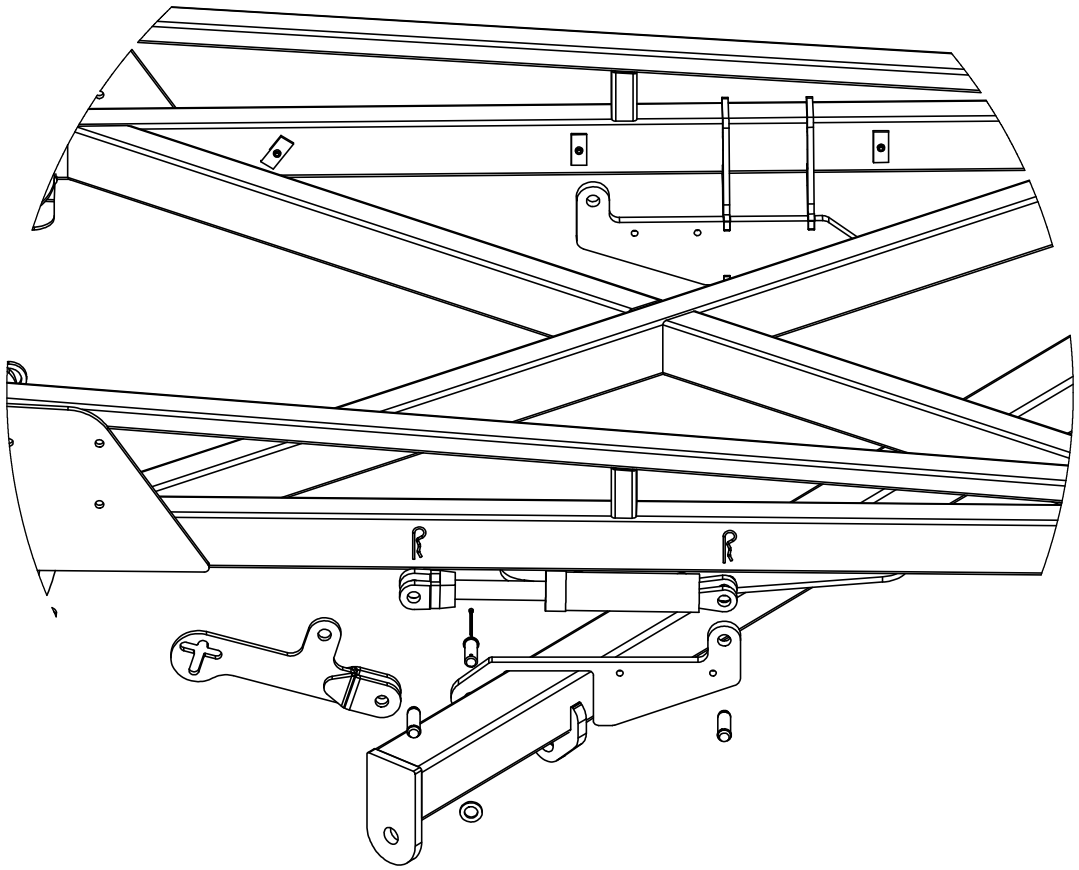
PART NUMBER	DESCRIPTION	QTY.
0801-44082938	Clevis Pin 1" x 75mm	2
0511-RCLIP4	R Clip 4mm	2
0801-KE-0307-1	Clevis Pin 25mm x 75mm	1
0810-106	30' Module Lift Arm	1
0231-F24	M24 zp Flat Washer	1
0311-5041	2 1/2" x 6" Hydraulic Cylinder Side Port	1
0261-PINC550	Cotter Pin M5 x 50	1

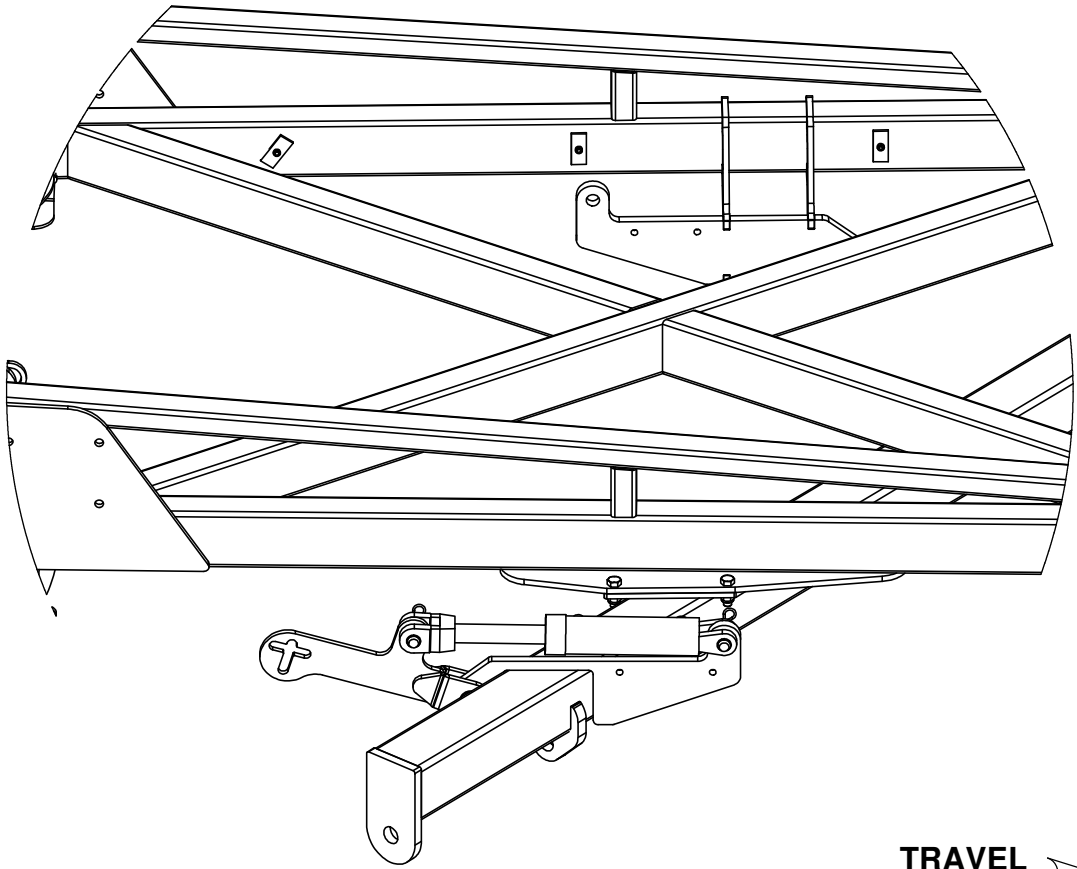




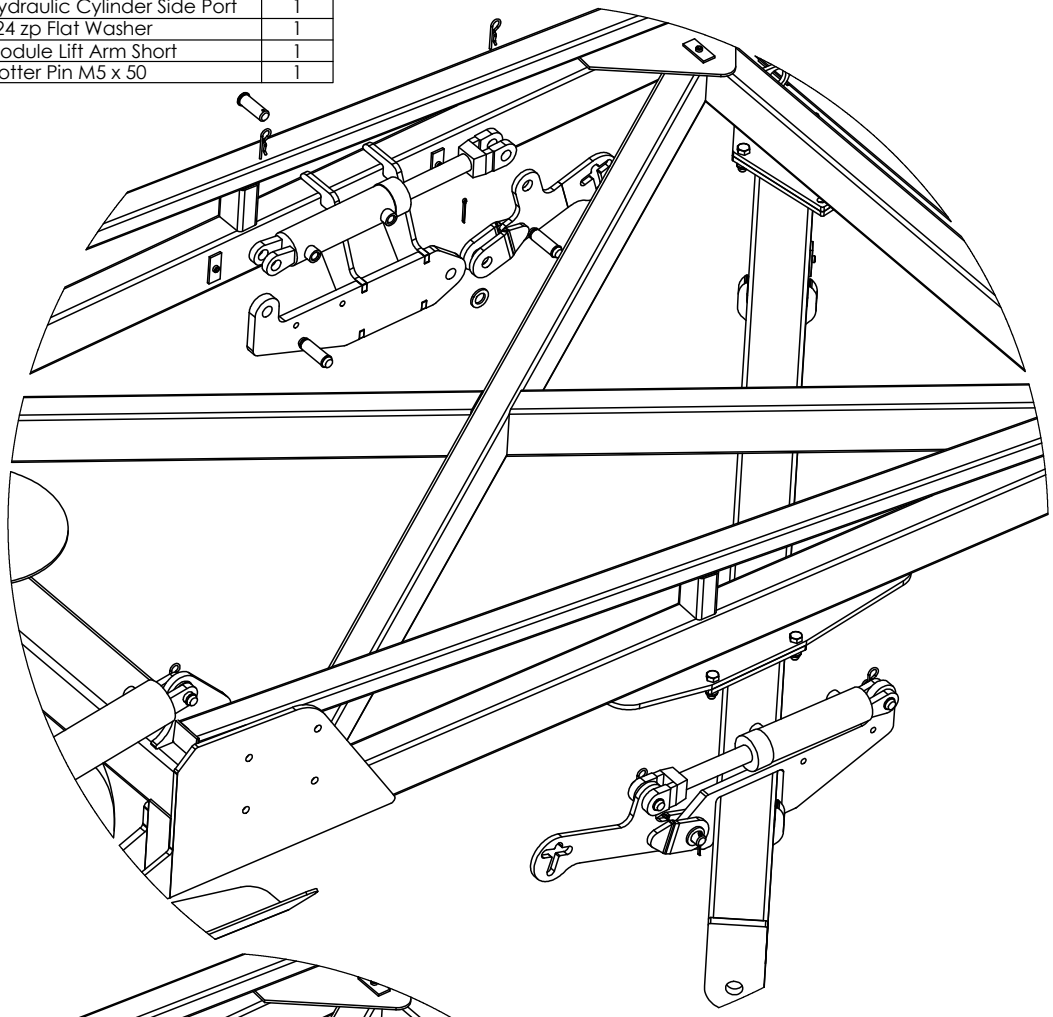
TRAVEL

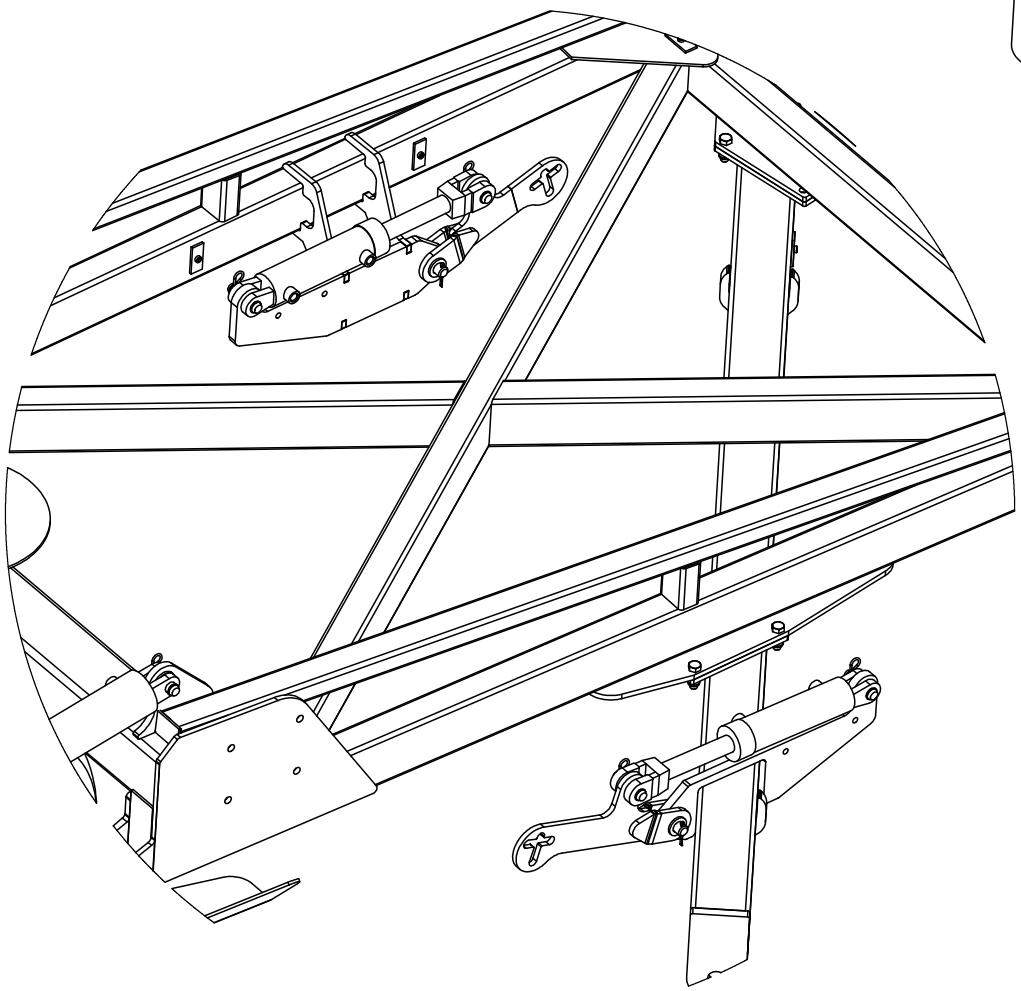
PART NUMBER	DESCRIPTION	QTY.
0801-44082938	Clevis Pin 1" x 75mm	2
0511-RCLIP4	R Clip 4mm	2
0801-KE-0307-1	Clevis Pin 25mm x 75mm	1
0810-106	30' Module Lift Arm	1
0311-5041	2 1/2" x 6" Hydraulic Cylinder Side Port	1
0231-F24	M24 zp Flat Washer	1
0261-PINC550	Cotter Pin M5 x 50	1

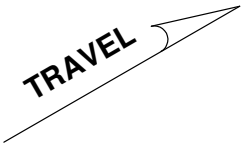




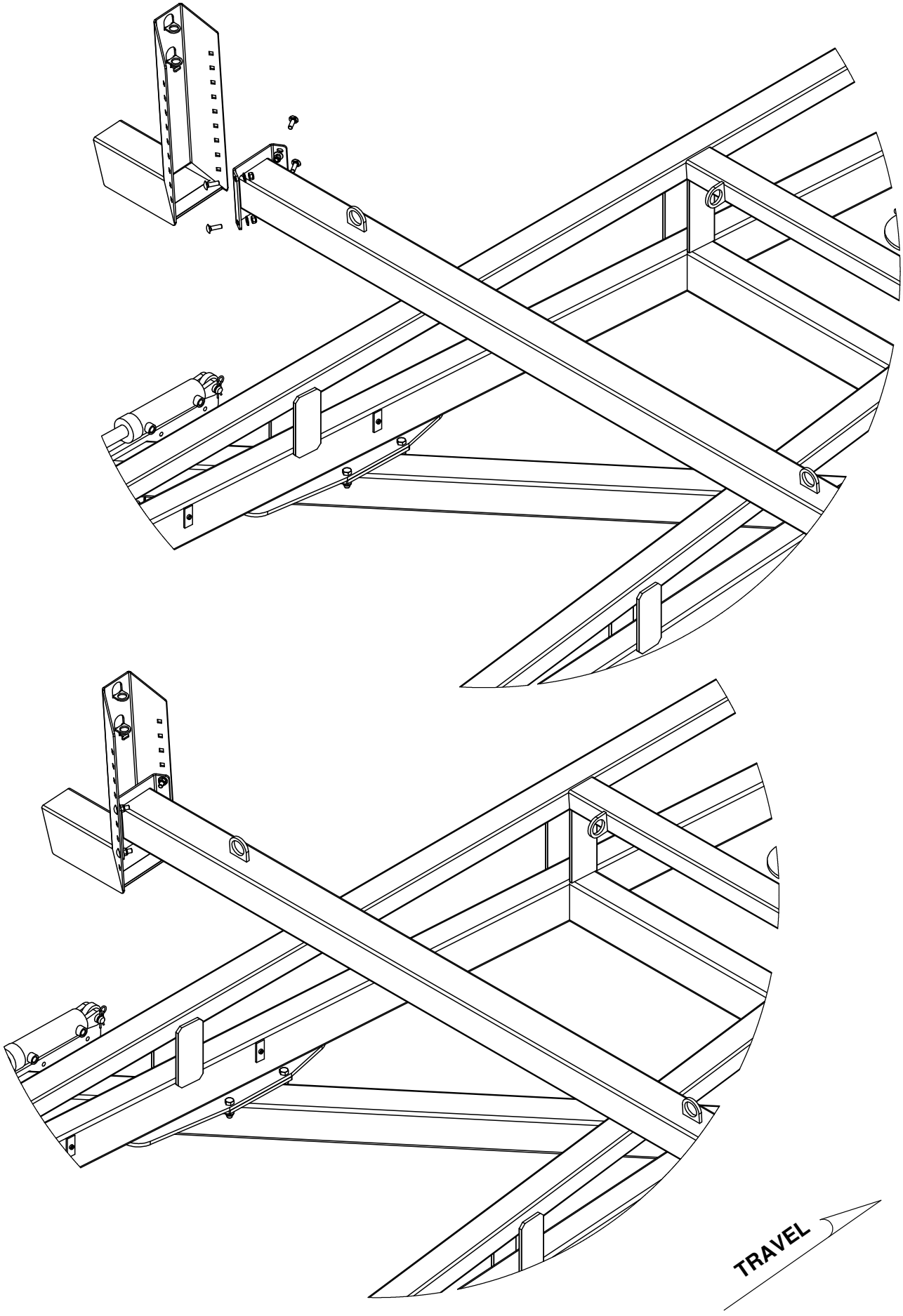
PART NUMBER	DESCRIPTION	QTY.
0801-44082938	Clevis Pin 1" x 75mm	2
0511-RCLIP4	R Clip 4mm	2
0801-KE-0307-1	Clevis Pin 25mm x 75mm	1
0311-5041	2 1/2" x 6" Hydraulic Cylinder Side Port	1
0231-F24	M24 zp Flat Washer	1
0810-107	30' Module Lift Arm Short	1
0261-PINC550	Cotter Pin M5 x 50	1



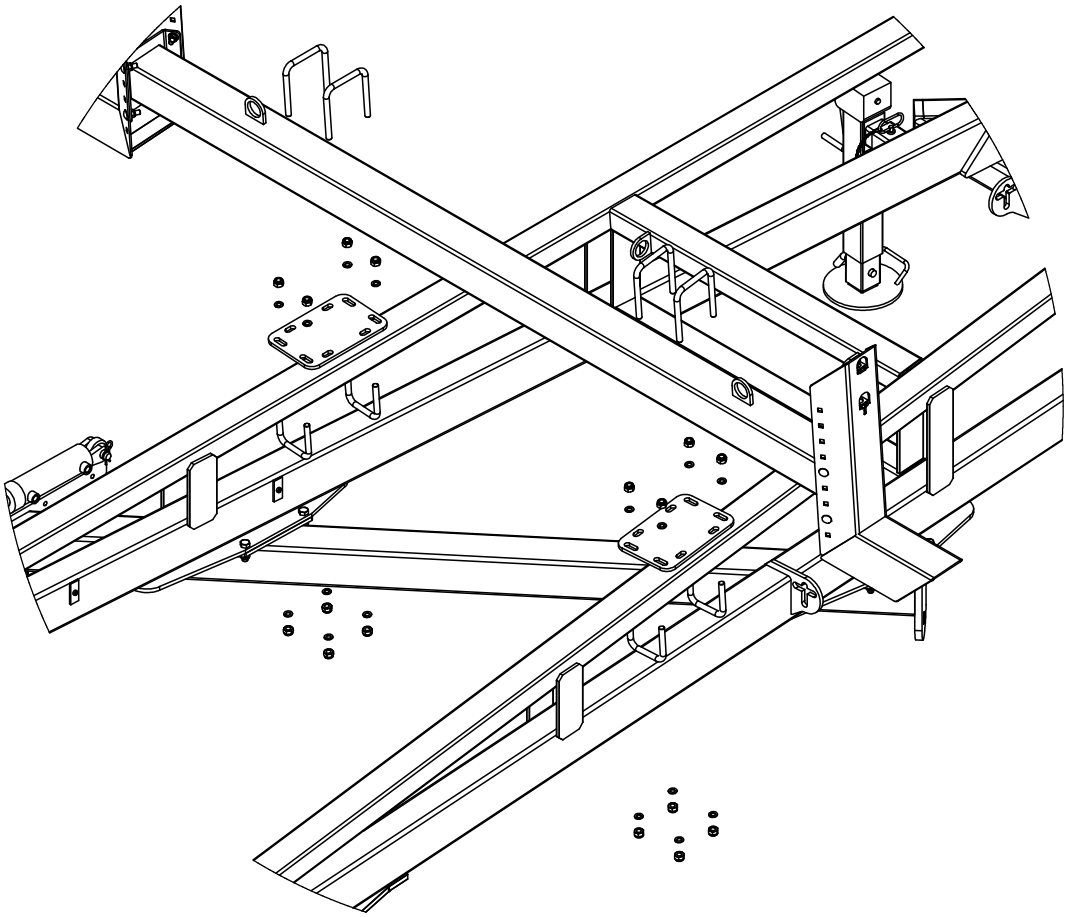


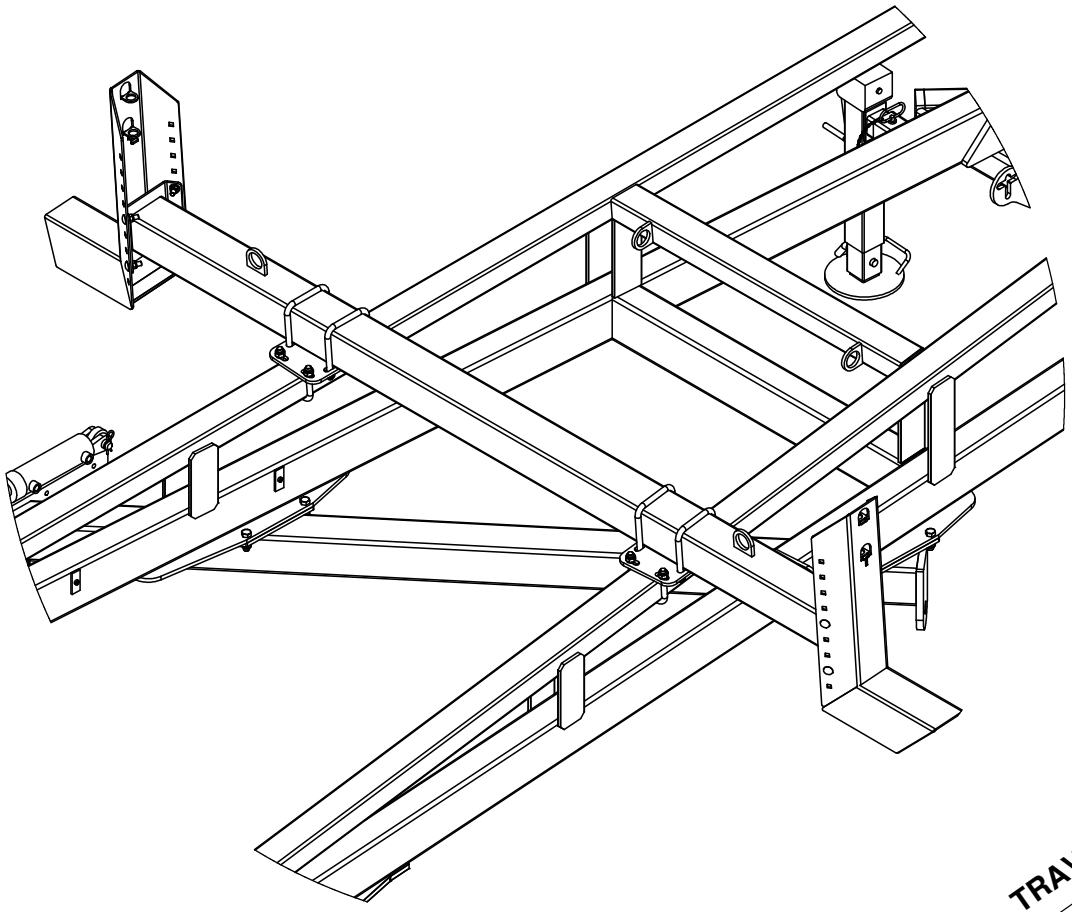


PART NUMBER	DESCRIPTION	QTY.
0231-F12	M12 Flat Washer	8
0221-NYL12	M12 Nyloc Nut	8
0810-17L	Chain Carrier Bolt on End	2
0810-17-30	30' Chain Carrier Beam	1
0215-CH1240	M12 x 40 Coach Head Bolt	8

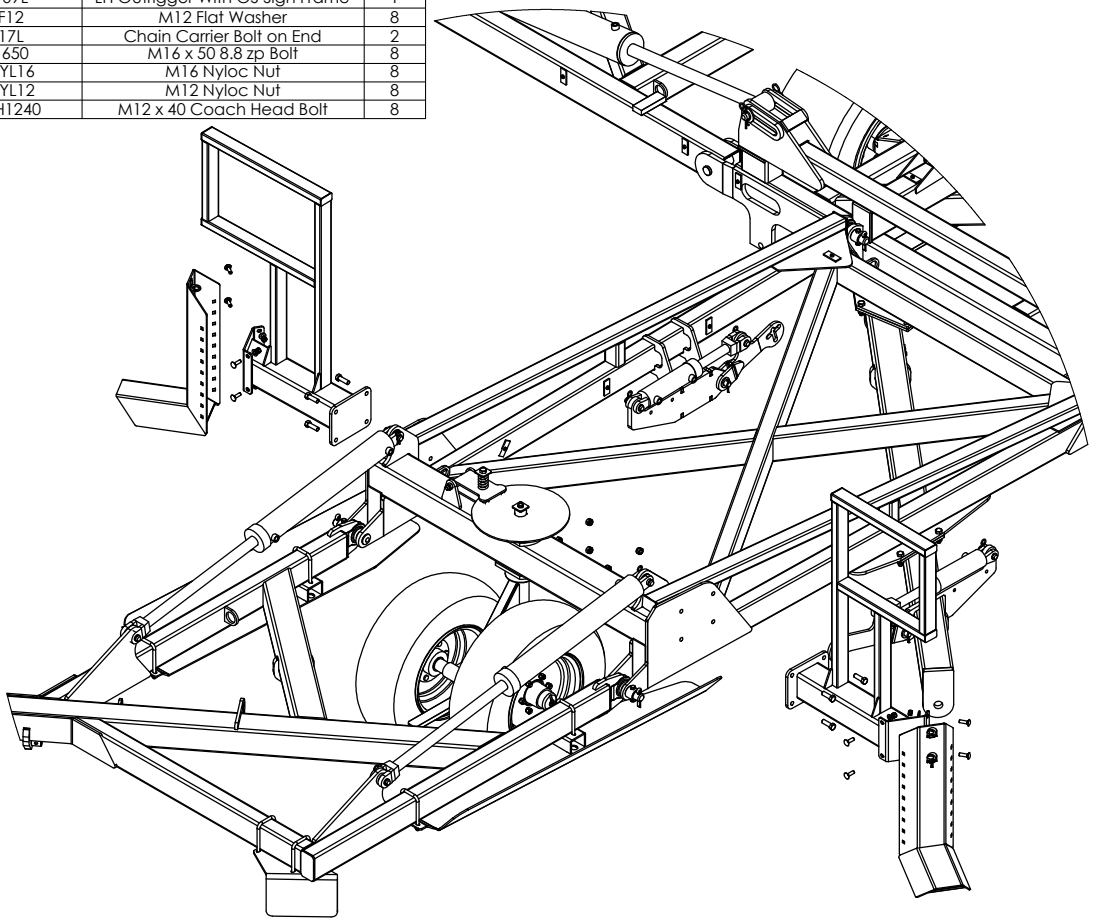


PART NUMBER	DESCRIPTION	QTY.
0800-139.1	Chain Carrier Mount Plate	2
0271-16112104	U-Bolt M16 x 112 x 104	4
0271-16160127	U-Bolt M16 x 160 x 127	4
0231-F12	M12 zp Flat Washer	16
0221-NYL16	M16 Nyloc Nut	16

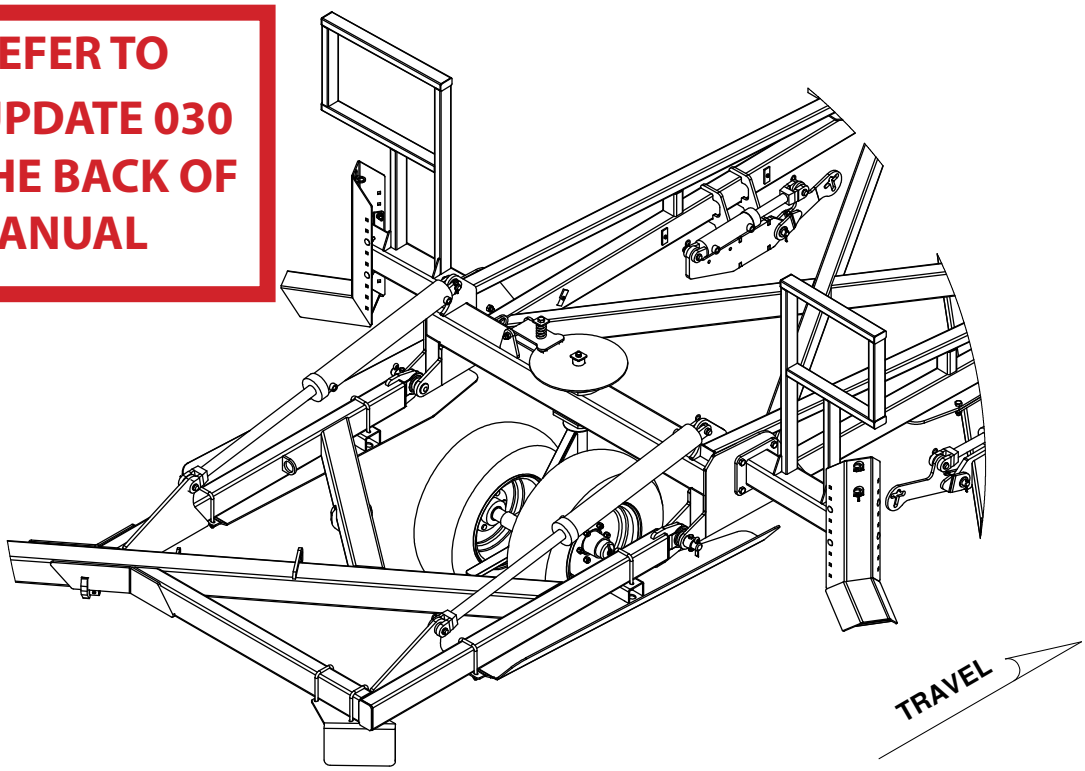




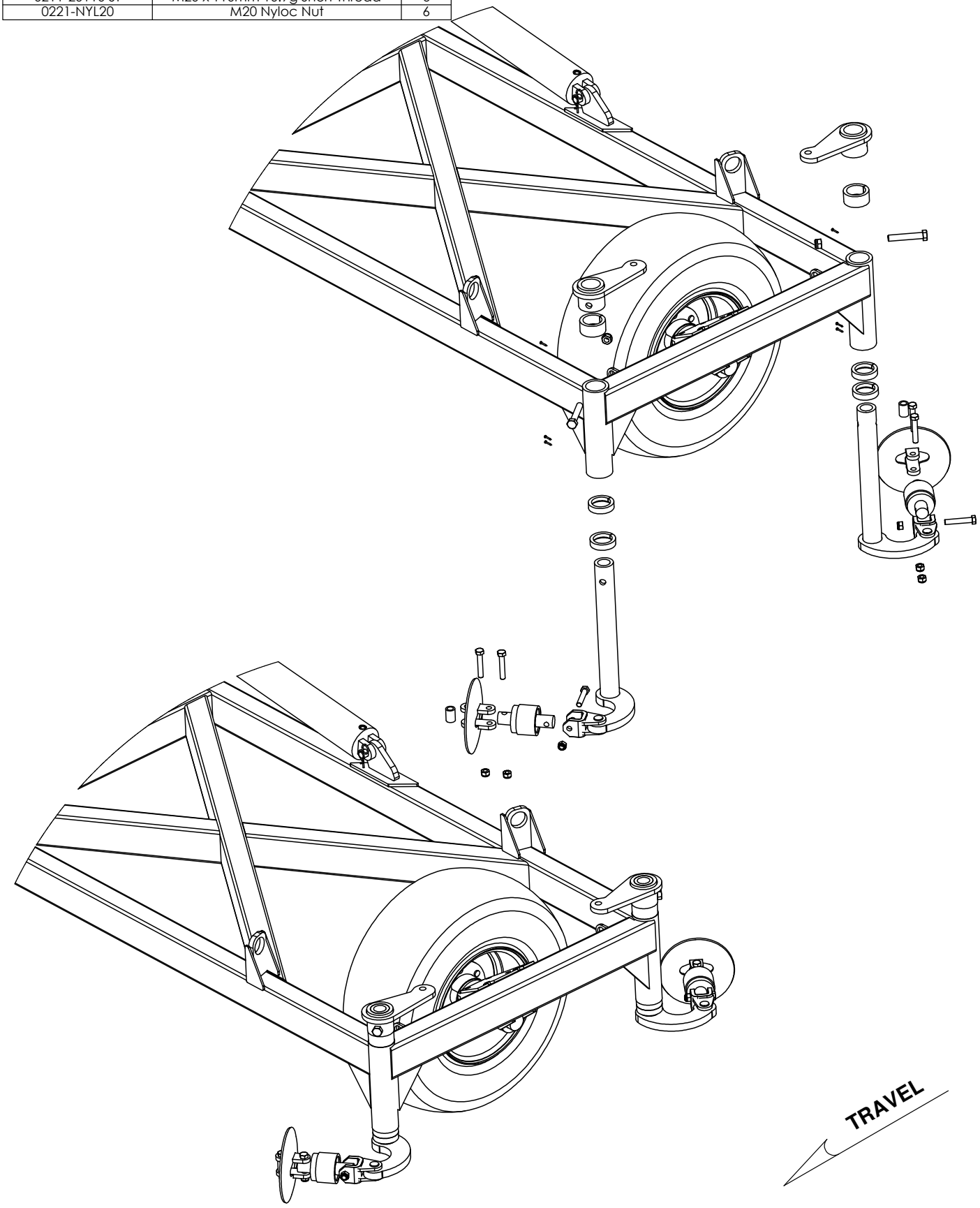
PART NUMBER	DESCRIPTION	QTY.
0810-109R	RH Outrigger With OS Sign Frame	1
0810-109L	LH Outrigger With OS Sign Frame	1
0231-F12	M12 Flat Washer	8
0810-17L	Chain Carrier Bolt on End	2
0211-1650	M16 x 50 8.8 zp Bolt	8
0221-NYL16	M16 Nyloc Nut	8
0221-NYL12	M12 Nyloc Nut	8
0215-CH1240	M12 x 40 Coach Head Bolt	8



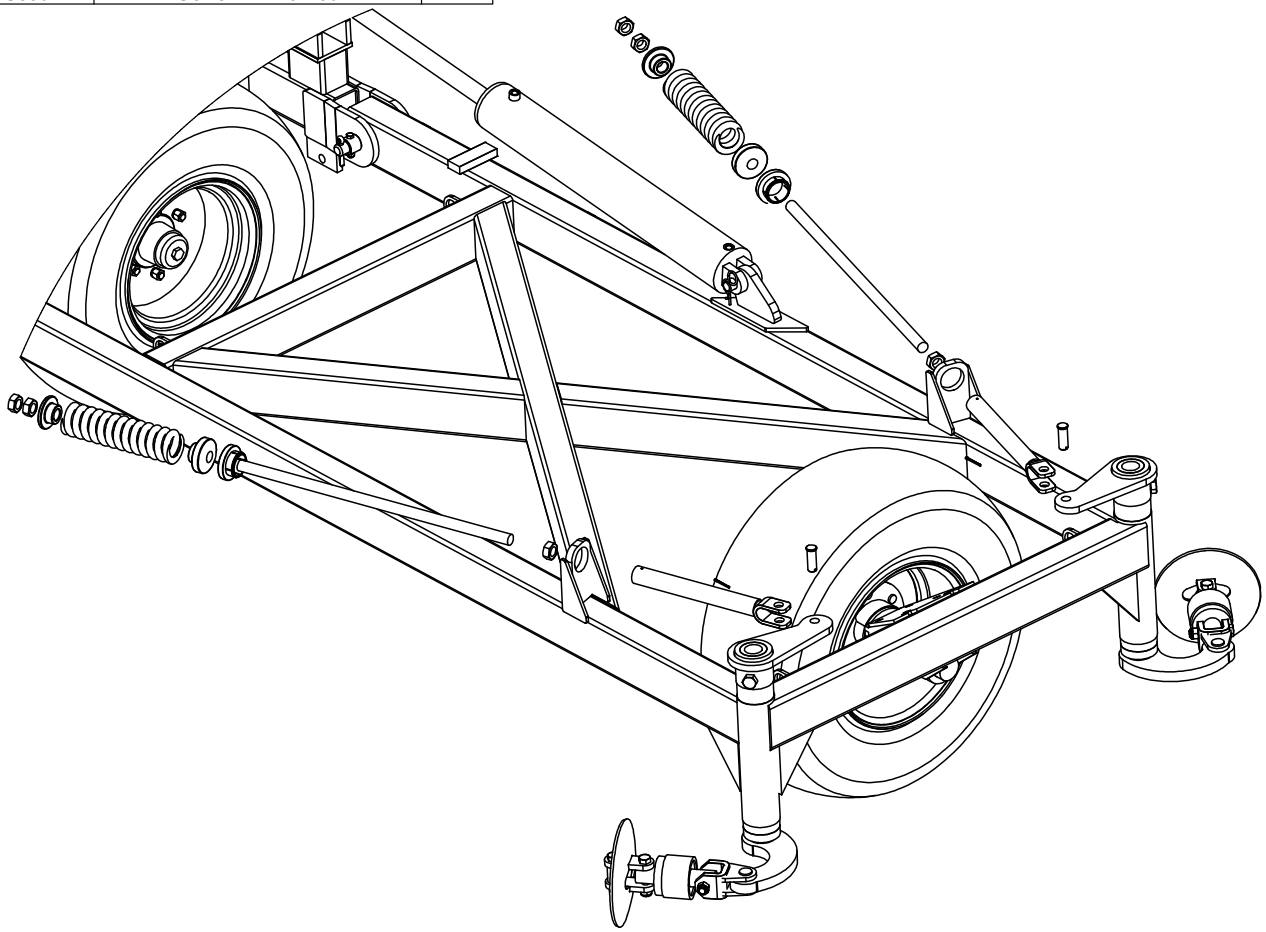
PLEASE REFER TO ASSEMBLY UPDATE 030 & 038 IN THE BACK OF THE MANUAL

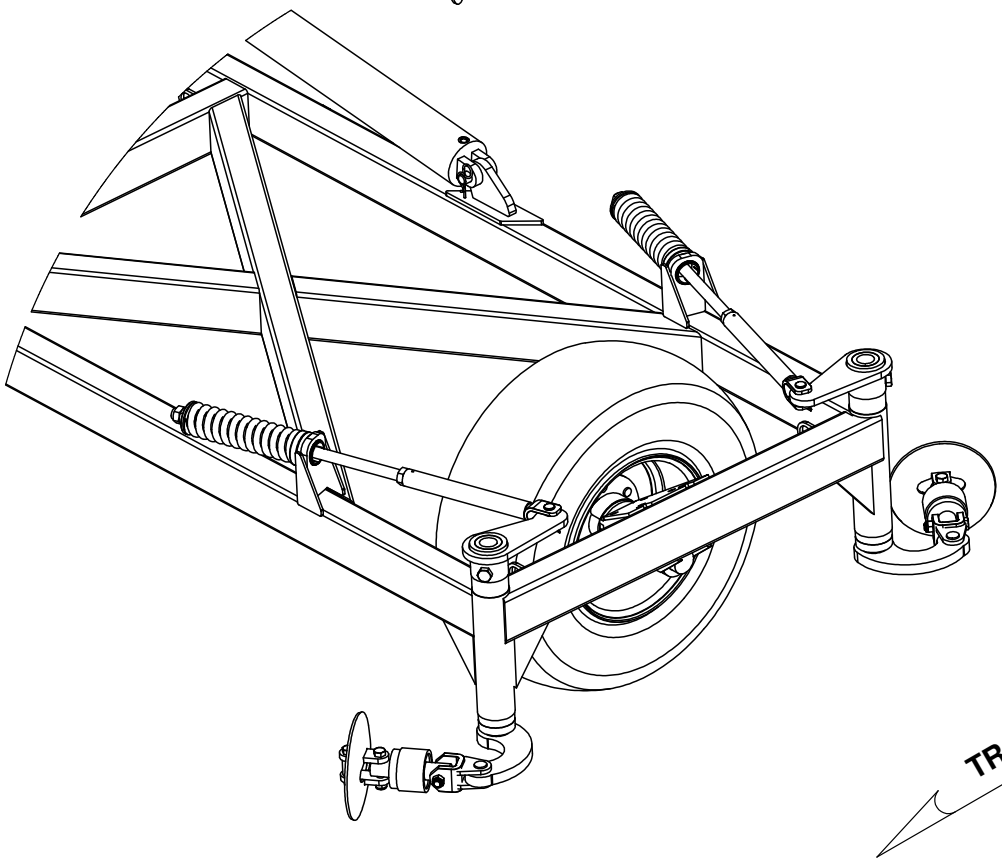


PART NUMBER	DESCRIPTION	QTY.
0801-PS50	50mm Drop Leg Spacer	2
0801-PS25	25mm Drop leg Spacer	4
0810-27	RH Chain Adjusting Lug	1
0810-26	LH Chain Adjusting Lug	1
0810-24	LH Drop Leg	1
0810-25	RH Drop Leg	1
0211-24140	M24 x 140 8.8 zp Bolt	2
0221-NYL24	M24 Nyloc Nut	2
0243-STS8G1.25ZP	Poly Spacer clamp Screw	6
0802-PCHB55	20mm Bolt Swivel Unit	2
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	2
0801-PCDCS55	Disc Chain Spacer	2
0211-20110 ST	M20 x 110mm 10.9g Short Thread	6
0221-NYL20	M20 Nyloc Nut	6

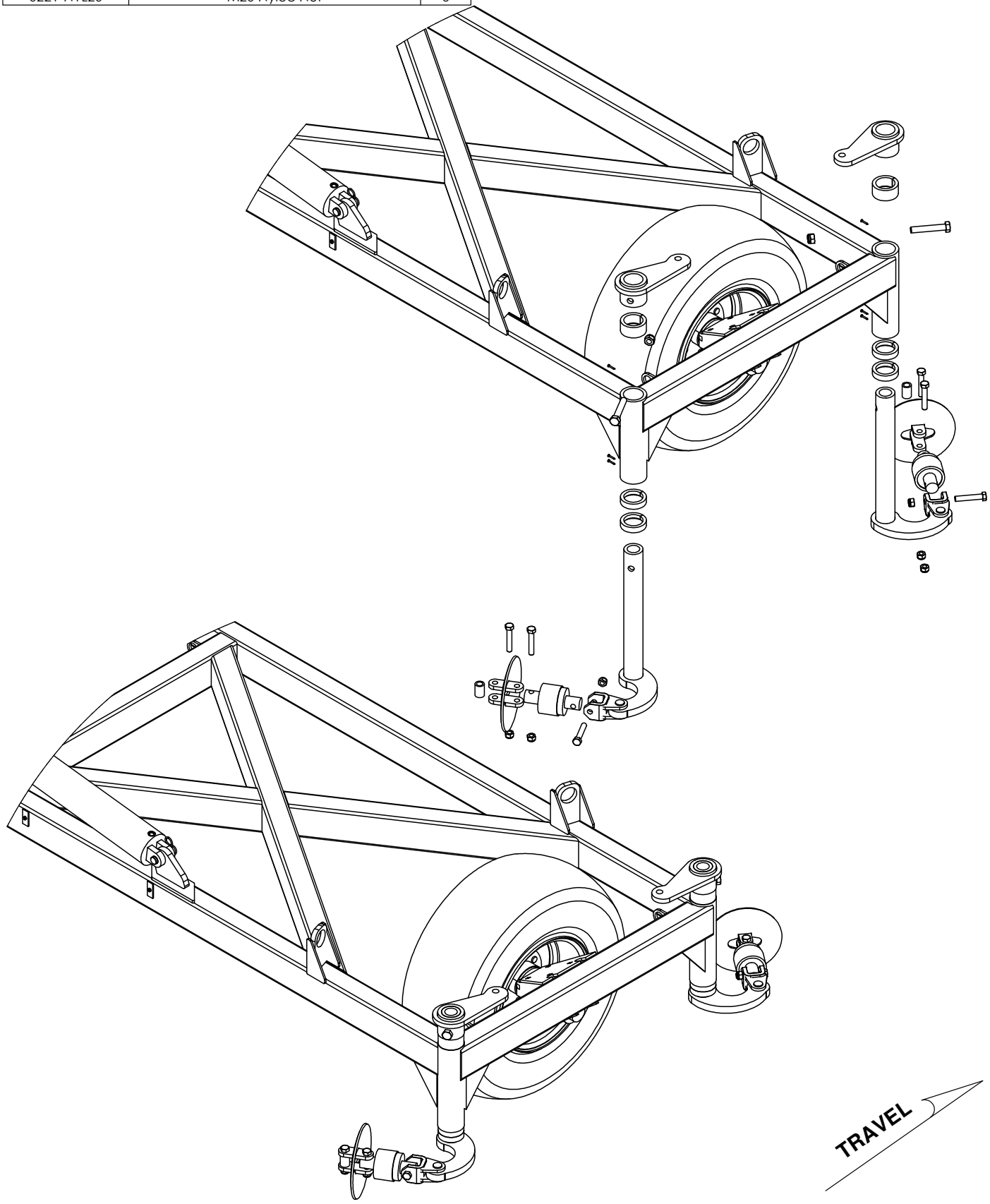


PART NUMBER	DESCRIPTION	QTY.
0801-KE-0307-1	Clevis Pin 25mm x 75mm	2
0801-XK9261S	20mm Compression Spring	2
0801-KE0805-3	Tensioner Cup Male	2
0801-KE0805-4	Tensioner Cup Female	2
0801-PCHTA-B6	6tpi 1.25" Tension Bolt	2
0801-PCHTA-BC	Tension Assembly Body	2
0801-PCHTA-N6	6tpi Lock Nut	6
0801-PCHTA-SB	Steel Spring Retaining Bush	2
0261-PINC550	Cotter Pin M5 x 50	2

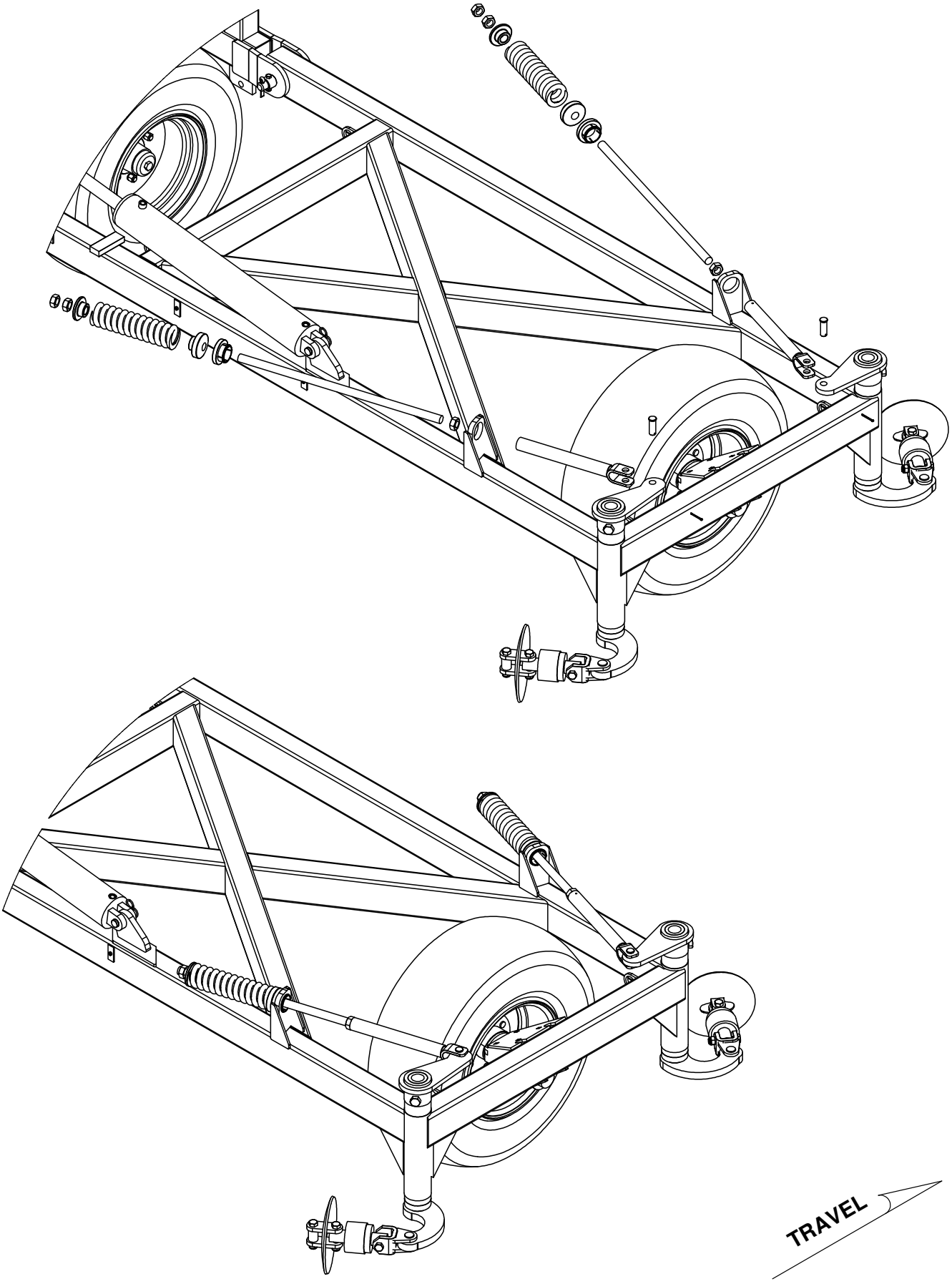




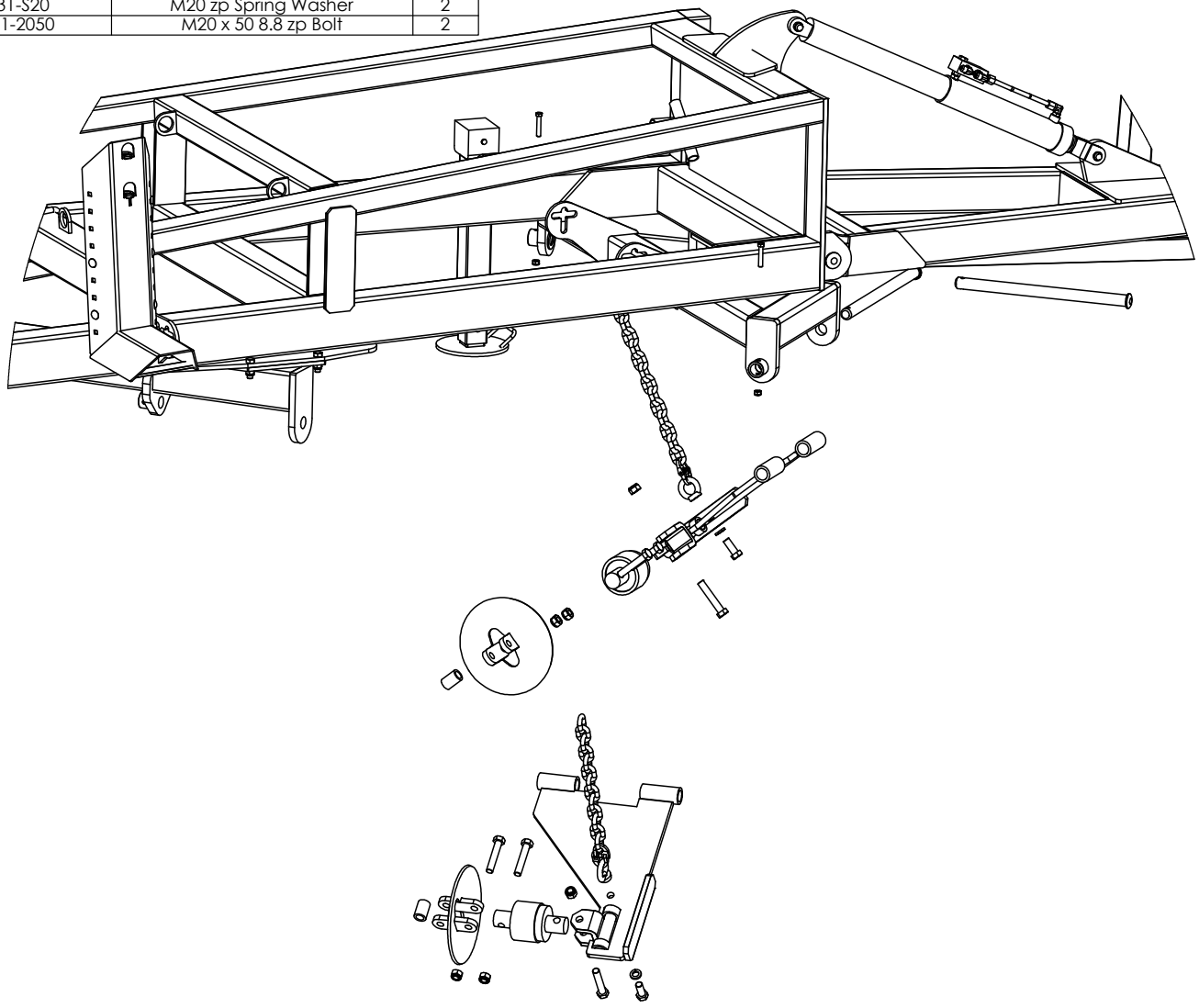
PART NUMBER	DESCRIPTION	QTY.
0801-PS50	50mm Drop Leg Spacer	2
0801-PS25	25mm Drop leg Spacer	4
0810-27	RH Chain Adjusting Lug	1
0810-26	LH Chain Adjusting Lug	1
0810-24	LH Drop Leg	1
0810-25	RH Drop Leg	1
0243-STS8G1.25ZP	Poly Spacer clamp Screw	6
0802-PCHB55	20mm Bolt Swivel Unit	2
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	2
0801-PCDCS55	Disc Chain Spacer	2
0211-24140	M24 x 140 8.8 zp Bolt	2
0221-NYL24	M24 Nyloc Nut	2
0211-20110 ST	M20 x 110mm 10.9g Short Thread	6
0221-NYL20	M20 Nyloc Nut	6

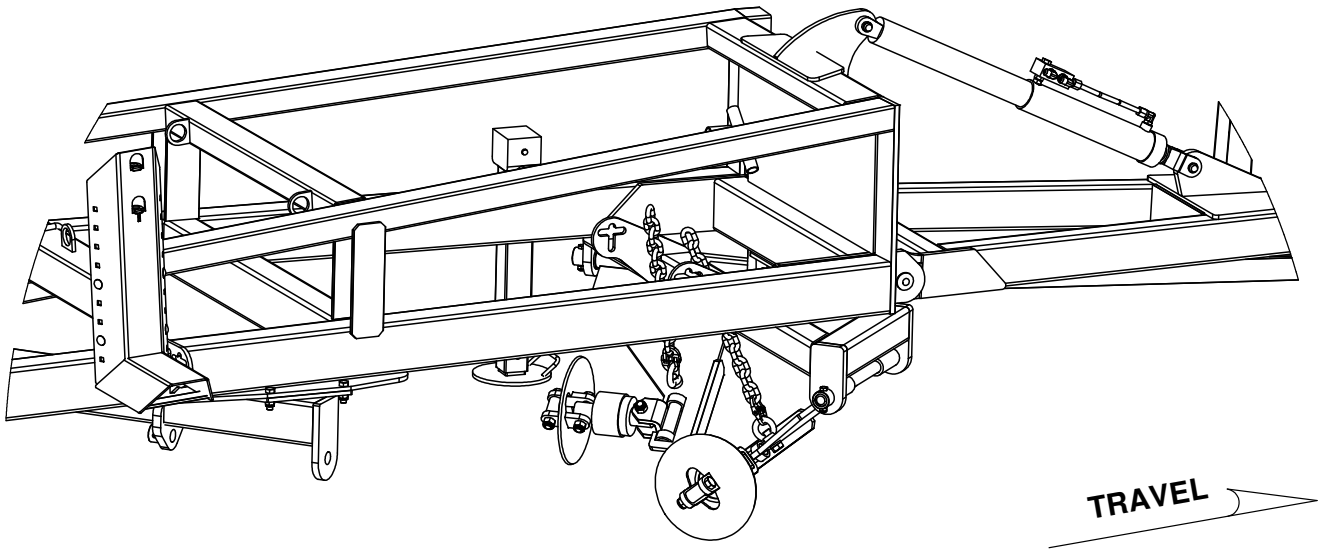


PART NUMBER	DESCRIPTION	QTY.
0801-KE-0307-1	Clevis Pin 25mm x 75mm	2
0801-XK9261S	20mm Compression Spring	2
0801-KE0805-3	Tensioner Cup Male	2
0801-KE0805-4	Tensioner Cup Female	2
0801-PCHTA-B6	6tpi 1.25" Tension Bolt	2
0801-PCHTA-BC	Tension Assembly Body	2
0801-PCHTA-N6	6tpi Lock Nut	6
0801-PCHTA-SB	Steel Spring Retaining Bush	2
0261-PINC550	Cotter Pin M5 x 50	2

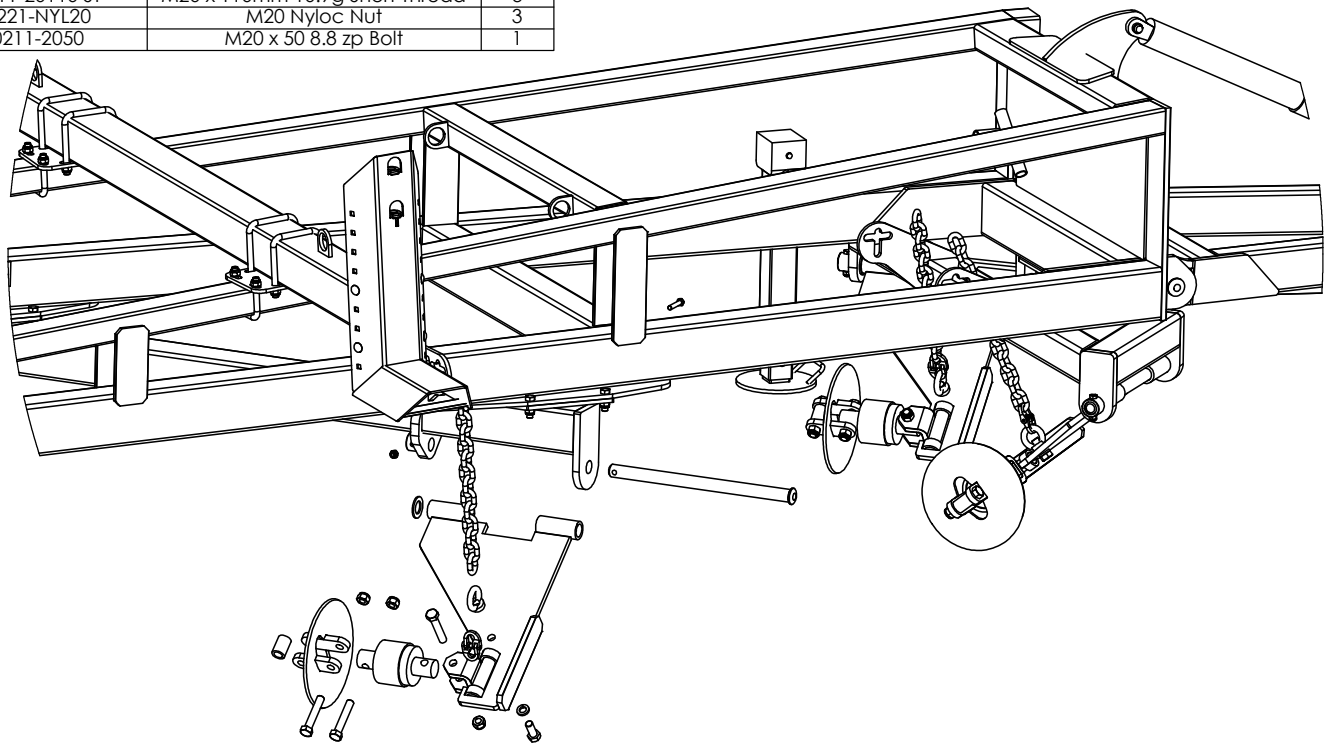


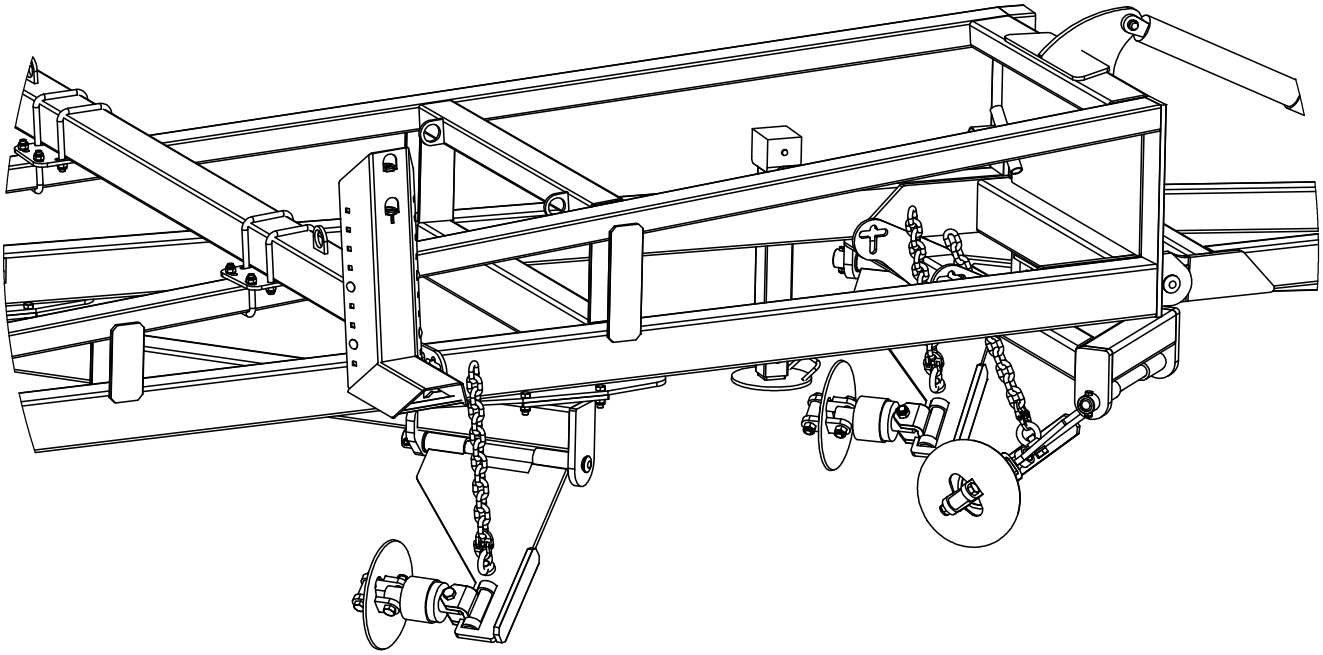
PART NUMBER	DESCRIPTION	QTY.
0802-PCHB55	20mm Bolt Swivel Unit	2
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	2
0801-PCDCS55	Disc Chain Spacer	2
0810-20	Chain Mount Arm	2
0801-10-51	Chain Mount Pin	2
0801-PCH24MCA	Height Adjusting Chain	2
0232-HT13-8	Washer High Tensile 1 3/8"	2
0211-1265	M12 x 65 8.8 zp Bolt	2
0221-NYL12	M12 Nyloc Nut	2
0211-20110 ST	M20 x 110mm 10.9g Short Thread	6
0221-NYL20	M20 Nyloc Nut	6
0231-S20	M20 zp Spring Washer	2
0211-2050	M20 x 50 8.8 zp Bolt	2





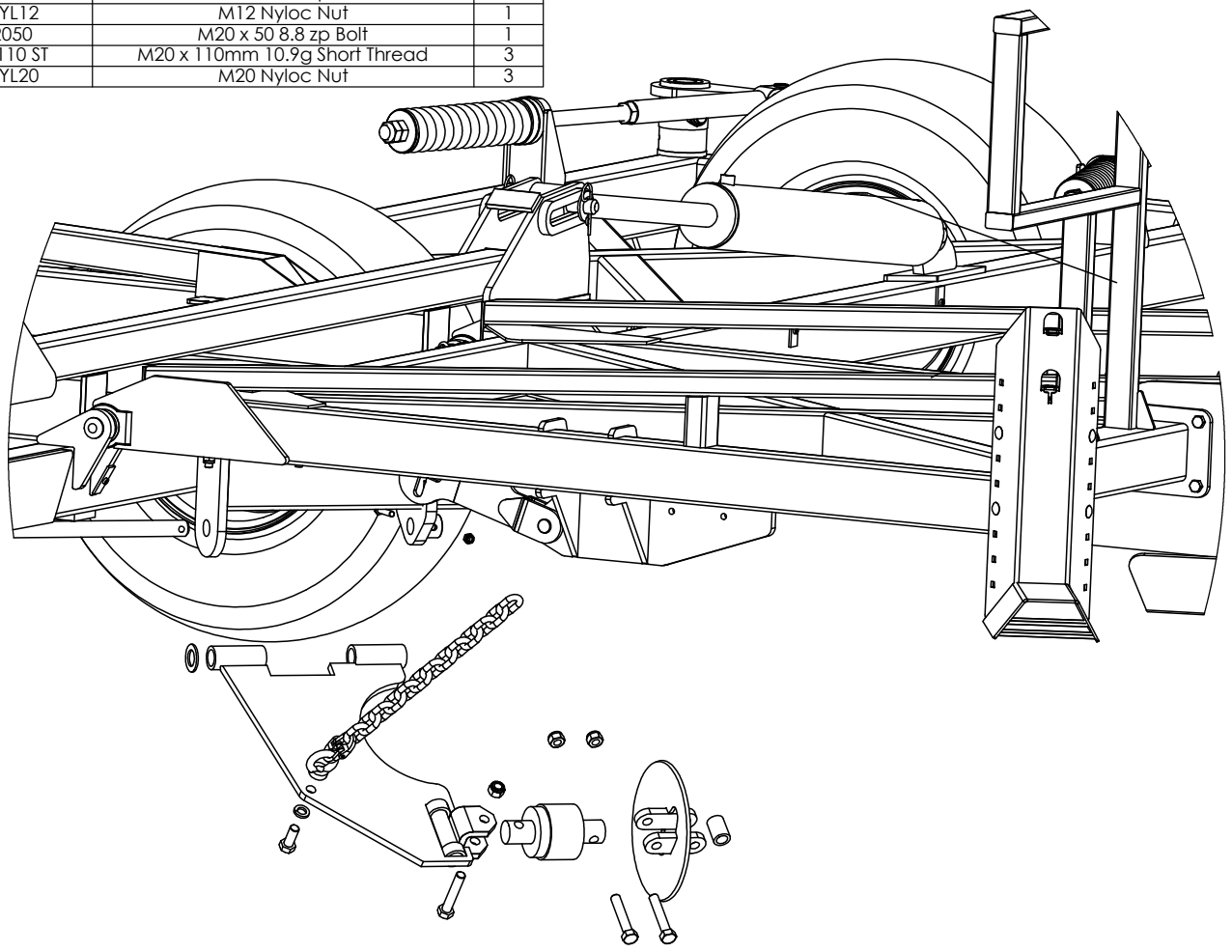
PART NUMBER	DESCRIPTION	QTY.
0802-PCHB55	20mm Bolt Swivel Unit	1
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	1
0801-PCDCS55	Disc Chain Spacer	1
0810-20	Chain Mount Arm	1
0801-10-51	Chain Mount Pin	1
0801-PCH24MCA	Height Adjusting Chain	1
0232-HT13-8	Washer High Tensile 1 3/8"	1
0231-S20	M20 zp Spring Washer	1
0211-1265	M12 x 65 8.8 zp Bolt	1
0221-NYL12	M12 Nyloc Nut	1
0211-20110 ST	M20 x 110mm 10.9g Short Thread	3
0221-NYL20	M20 Nyloc Nut	3
0211-2050	M20 x 50 8.8 zp Bolt	1

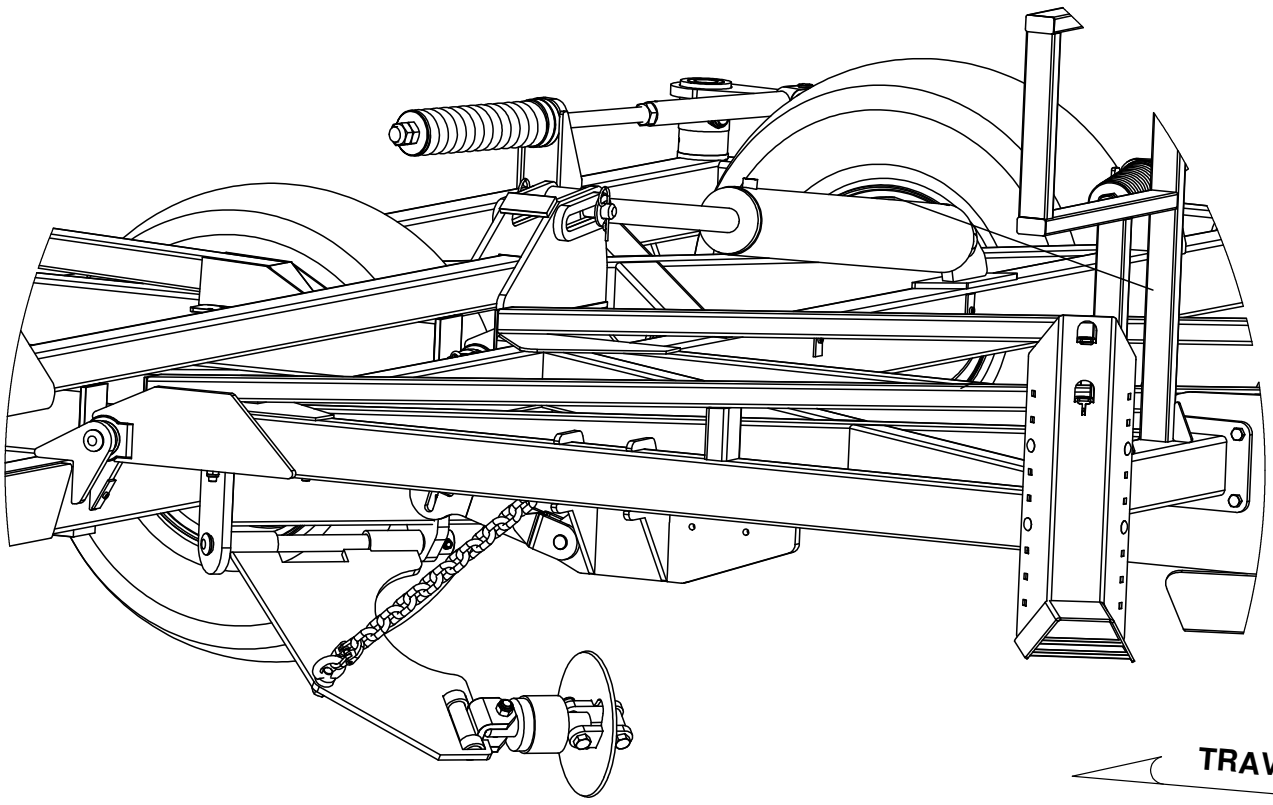




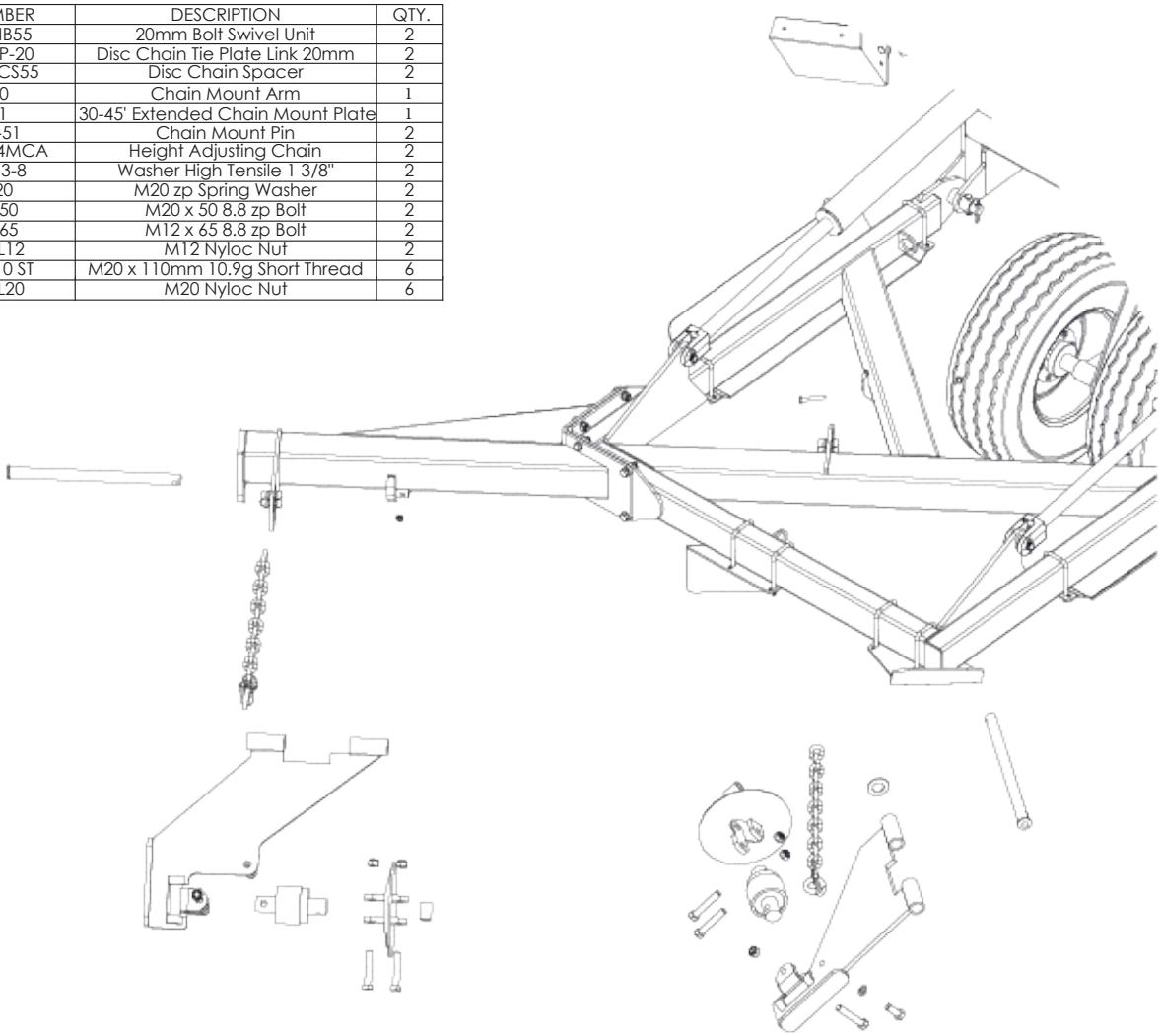
TRAVEL

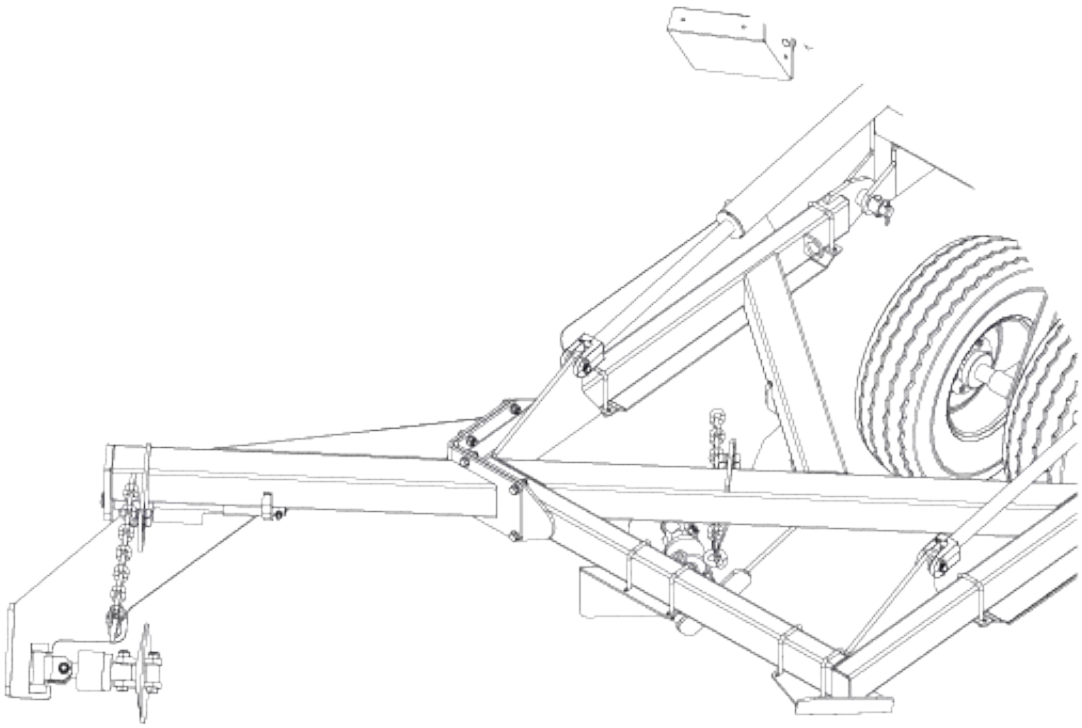
PART NUMBER	DESCRIPTION	QTY.
0802-PCHB55	20mm Bolt Swivel Unit	1
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	1
0801-PCDCS55	Disc Chain Spacer	1
0801-10-51	Chain Mount Pin	1
0801-PCH24MCA	Height Adjusting Chain	1
0232-HT13-8	Washer High Tensile 1 3/8"	1
0231-S20	M20 zp Spring Washer	1
0810-33	Reducing Chain Mount Arm 20mm Clevis	1
0211-1265	M12 x 65 8.8 zp Bolt	1
0221-NYL12	M12 Nyloc Nut	1
0211-2050	M20 x 50 8.8 zp Bolt	1
0211-20110 ST	M20 x 110mm 10.9g Short Thread	3
0221-NYL20	M20 Nyloc Nut	3



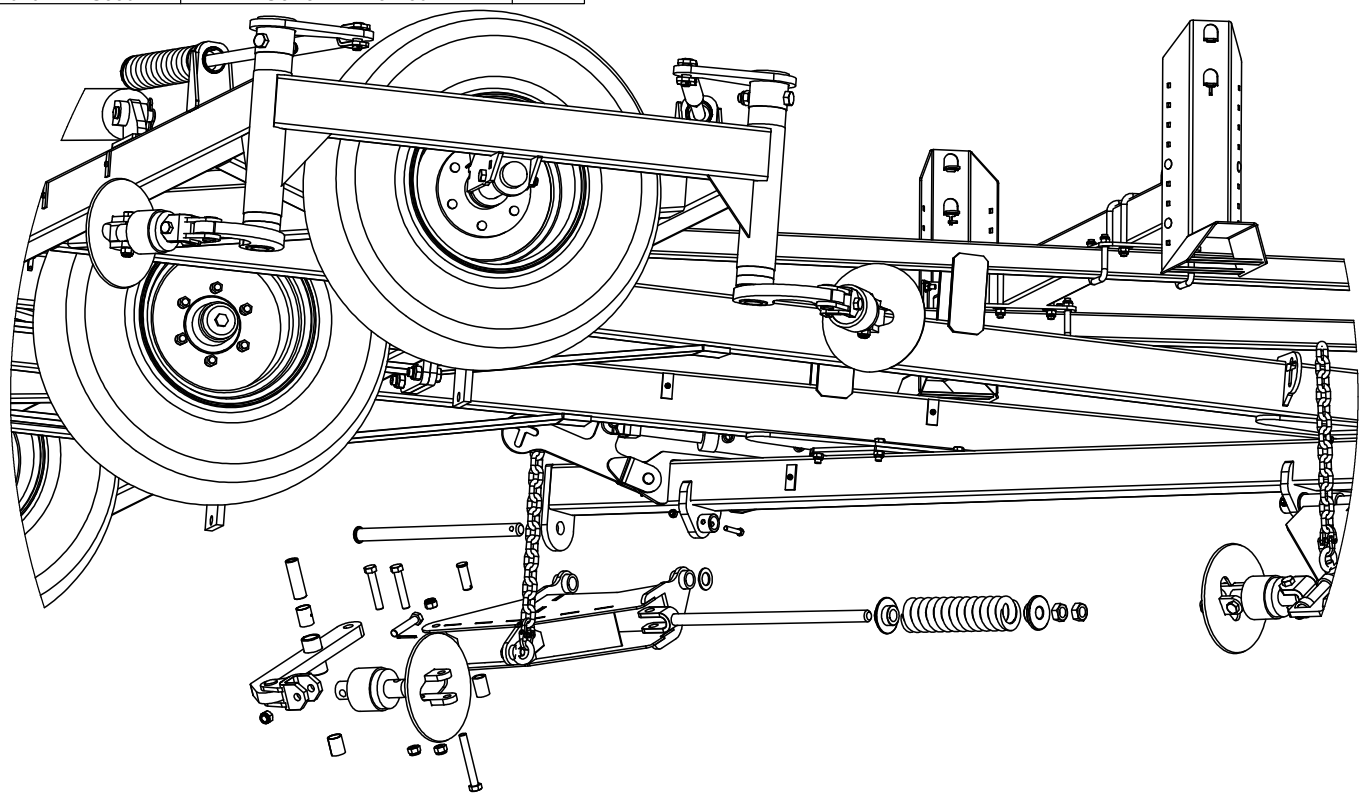


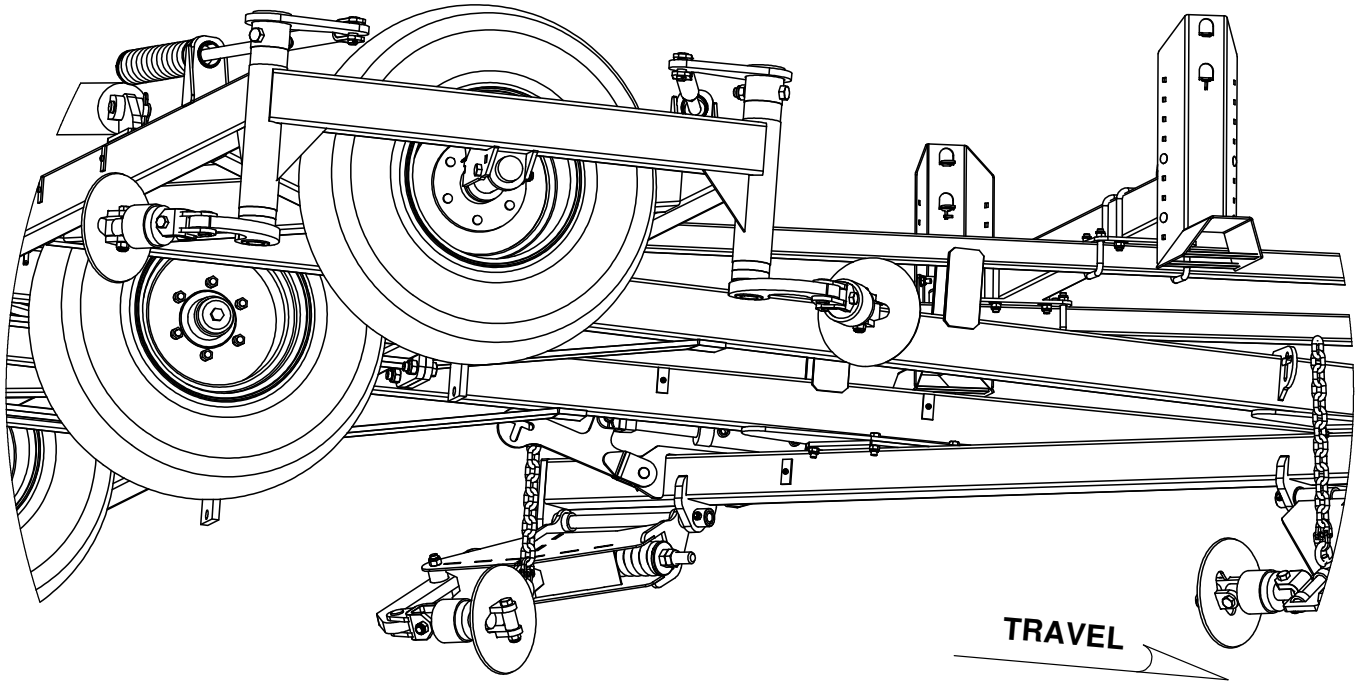
PART NUMBER	DESCRIPTION	QTY.
0802-PCHB55	20mm Bolt Swivel Unit	2
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	2
0801-PCDCS55	Disc Chain Spacer	2
0810-20	Chain Mount Arm	1
0810-21	30-45' Extended Chain Mount Plate	1
0801-10-51	Chain Mount Pin	2
0801-PCH24MCA	Height Adjusting Chain	2
0232-HT13-8	Washer High Tensile 1 3/8"	2
0231-S20	M20 zp Spring Washer	2
0211-2050	M20 x 50 8.8 zp Bolt	2
0211-1265	M12 x 65 8.8 zp Bolt	2
0221-NYL12	M12 Nyloc Nut	2
0211-20110 ST	M20 x 110mm 10.9g Short Thread	6
0221-NYL20	M20 Nyloc Nut	6



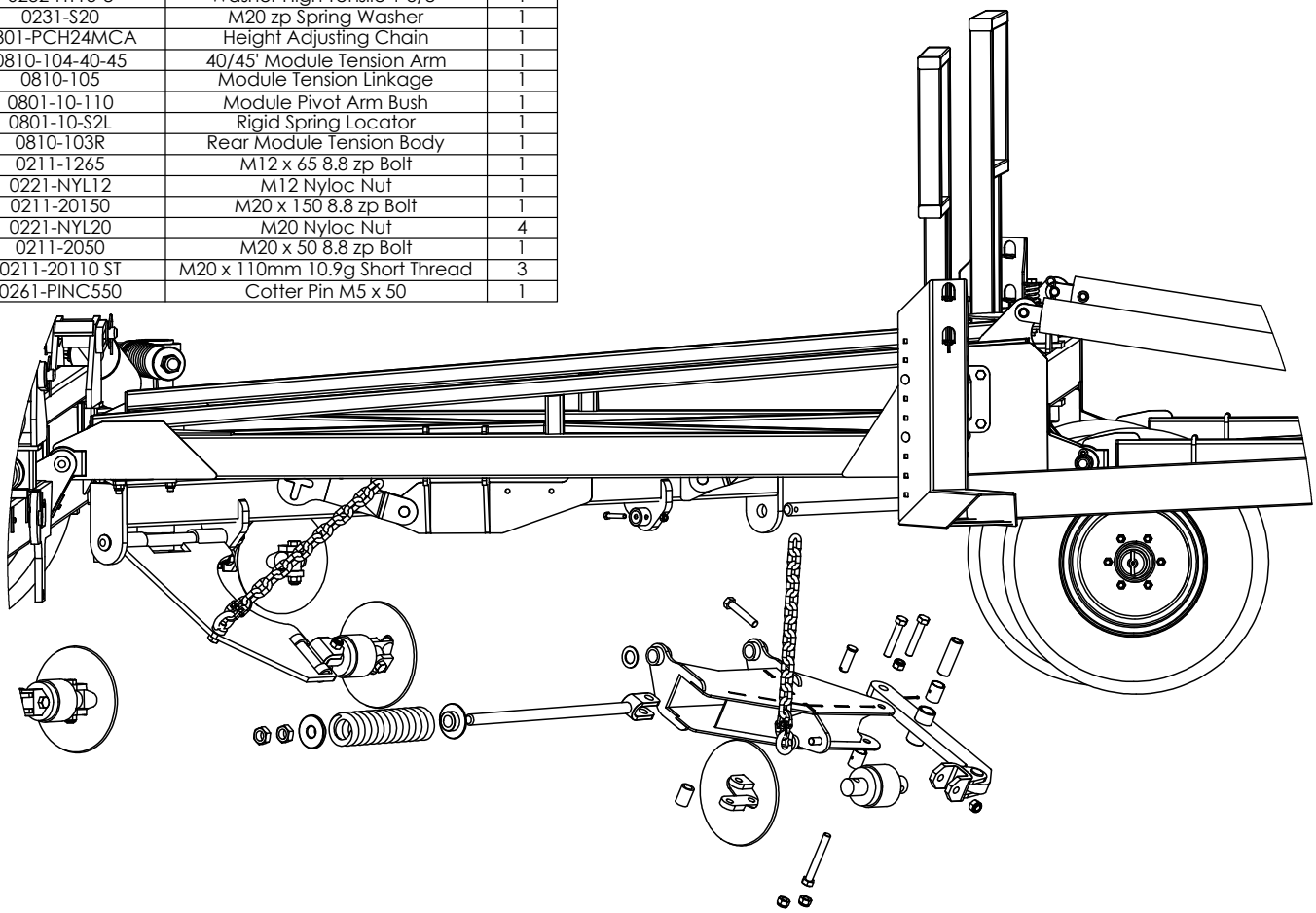


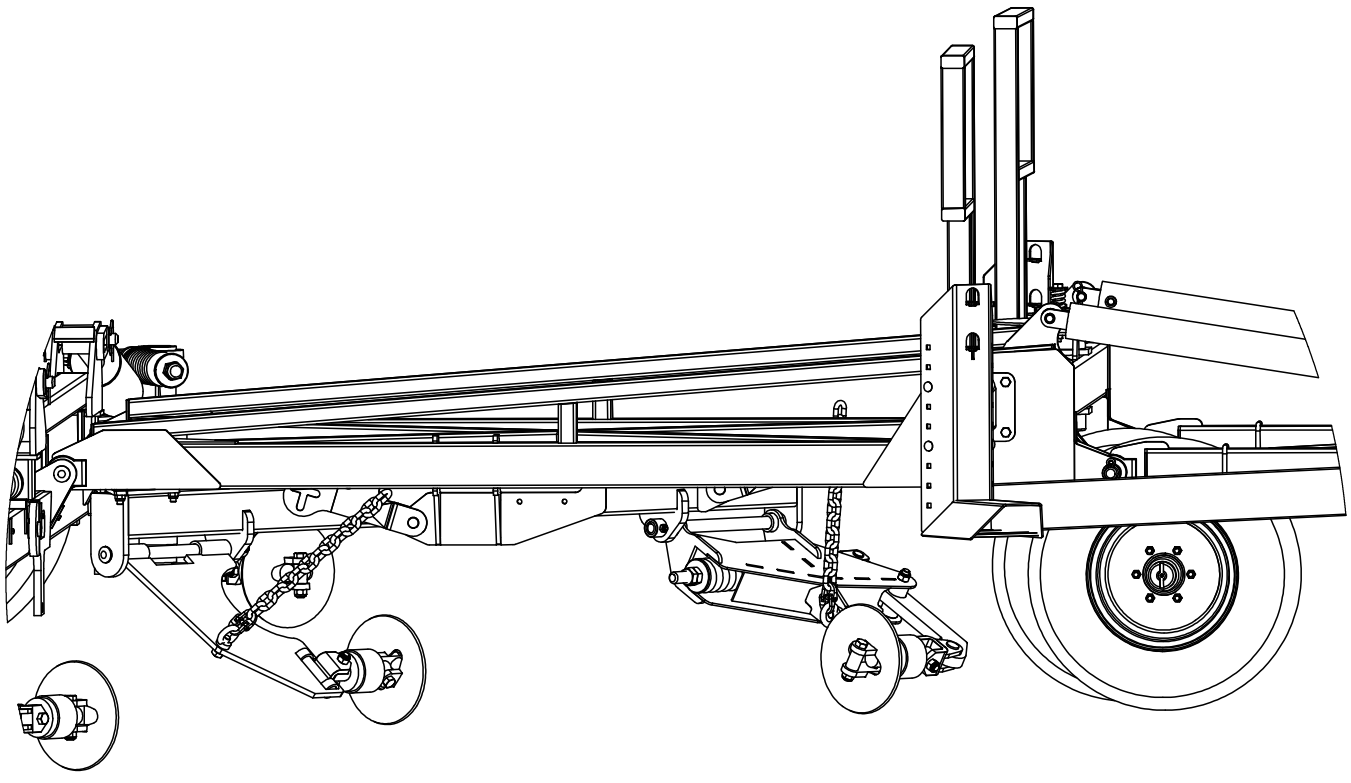
PART NUMBER	DESCRIPTION	QTY.
0113-MB 3550DX	35 ID x 50mm DX Bush	2
0801-KE-0307-1	Clevis Pin 25mm x 75mm	1
0802-PCHB55	20mm Bolt Swivel Unit	1
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	1
0801-PCDCS55	Disc Chain Spacer	1
0801-XK9261S	20mm Compression Spring	1
0801-PCHTA-N6	6tpi Lock Nut	2
0801-PCHTA-SB	Steel Spring Retaining Bush	1
0801-10-51	Chain Mount Pin	1
0232-HT13-8	Washer High Tensile 1 3/8"	1
0231-S20	M20 zp Spring Washer	1
0810-103F	Front Module Tension Body	1
0211-1265	M12 x 65 8.8 zp Bolt	1
0221-NYL12	M12 Nyloc Nut	1
0801-PCH24MCA	Height Adjusting Chain	1
0810-104-40-45	40/45' Module Tension Arm	1
0810-105	Module Tension Linkage	1
0801-10-110	Module Pivot Arm Bush	1
0801-10-S2L	Rigid Spring Locator	1
0211-20110 ST	M20 x 110mm 10.9g Short Thread	3
0221-NYL20	M20 Nyloc Nut	4
0211-2050	M20 x 50 8.8 zp Bolt	1
0211-20150	M20 x 150 8.8 zp Bolt	1
0261-PINC550	Cotter Pin M5 x 50	1



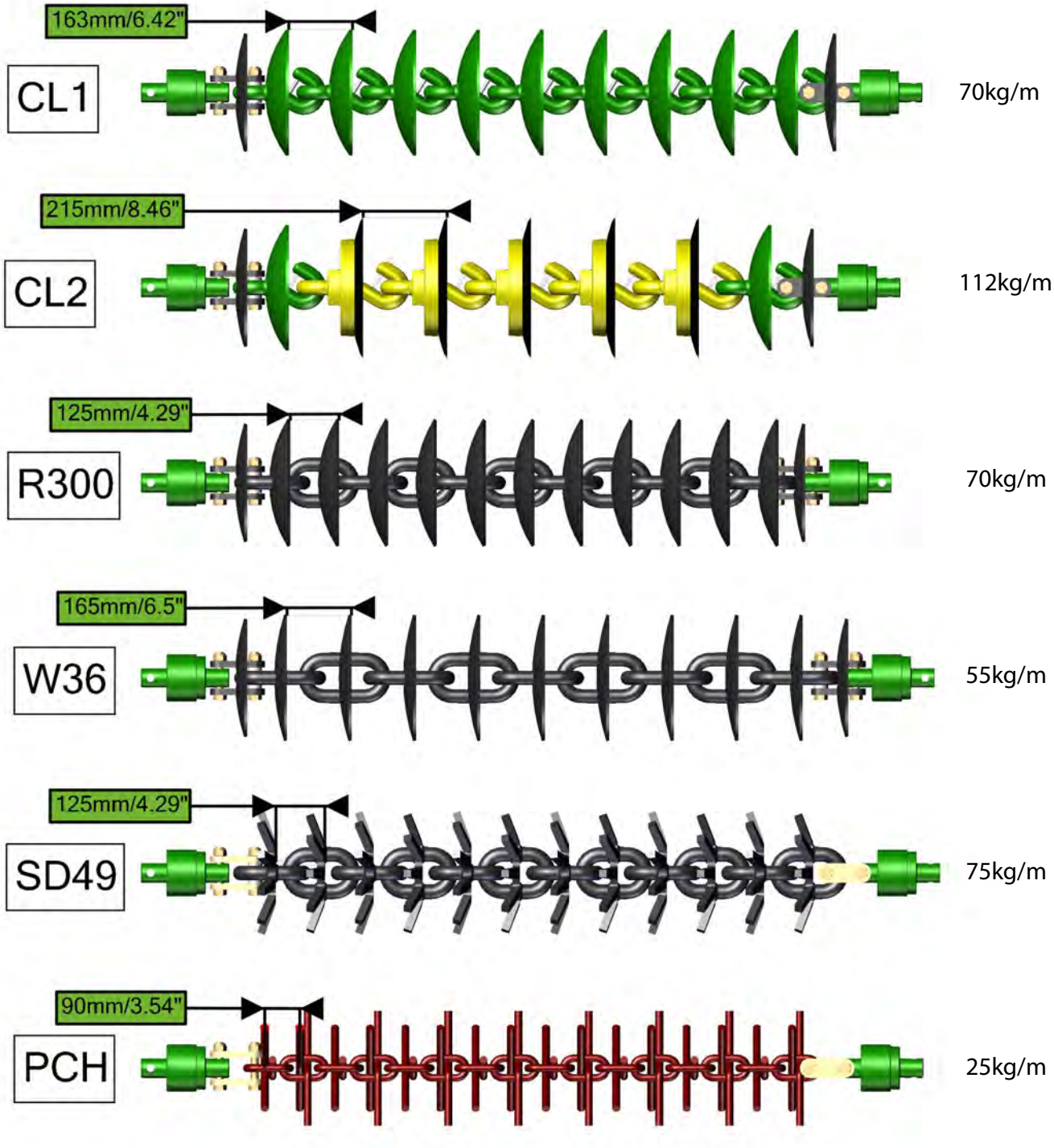


PART NUMBER	DESCRIPTION	QTY.
0113-MB 3550DX	35 ID x 50mm DX Bush	2
0801-KE-0307-1	Clevis Pin 25mm x 75mm	1
0802-PCHB55	20mm Bolt Swivel Unit	1
0802-DCTP-20	Disc Chain Tie Plate Link 20mm	1
0801-PCDCS55	Disc Chain Spacer	1
0801-XK9261S	20mm Compression Spring	1
0801-PCHTA-N6	6tpi Lock Nut	2
0801-PCHTA-SB	Steel Spring Retaining Bush	1
0801-10-51	Chain Mount Pin	1
0232-HT13-8	Washer High Tensile 1 3/8"	1
0231-S20	M20 zp Spring Washer	1
0801-PCH24MCA	Height Adjusting Chain	1
0810-104-40-45	40/45' Module Tension Arm	1
0810-105	Module Tension Linkage	1
0801-10-110	Module Pivot Arm Bush	1
0801-10-S2L	Rigid Spring Locator	1
0810-103R	Rear Module Tension Body	1
0211-1265	M12 x 65 8.8 zp Bolt	1
0221-NYL12	M12 Nyloc Nut	1
0211-20150	M20 x 150 8.8 zp Bolt	1
0221-NYL20	M20 Nyloc Nut	4
0211-2050	M20 x 50 8.8 zp Bolt	1
0211-20110 ST	M20 x 110mm 10.9g Short Thread	3
0261-PINC550	Cotter Pin M5 x 50	1



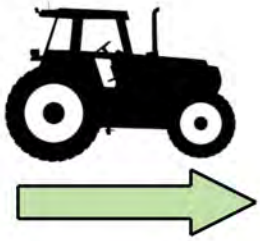


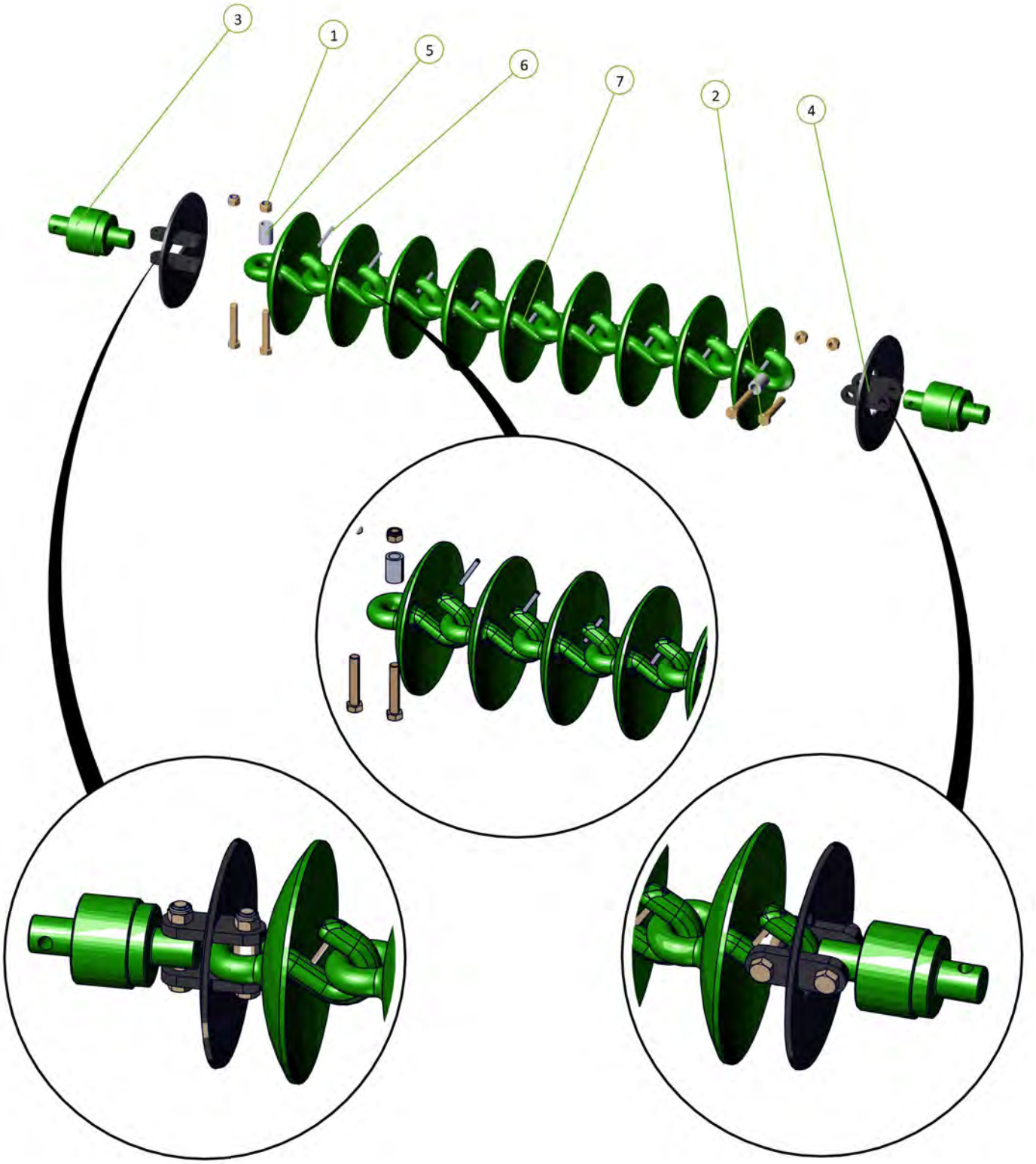
Section 3
Chain Assembly


163mm/6.42"
CL1
70kg/m
215mm/8.46"
CL2
112kg/m
125mm/4.29"
R300
70kg/m
165mm/6.5"
W36
55kg/m
125mm/4.29"
SD49
75kg/m
90mm/3.54"
PCH
25kg/m

CL1 Disc Chain

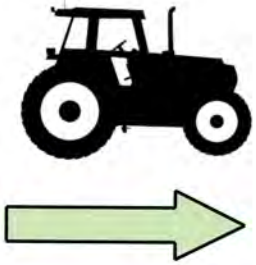
Item No.	Description	Number	Qty
1	Nyloc Nut M20/24	0221-NYL20/24	4
2	M20 x 110 / M24 x 120 grade 10.9 ZP Short Thread Bolt	0211-20110ST/0211-24120ST	4
3	20/24mm Bolt Swivel Unit	0802-PCHB55 / 0802-PCHB553	2
4	Disc Chain Tie Plate Link 20mm / 24mm	0802-DCTP-20 / 0802-DCTP-24	2
5	Tie Plate Bush	0801-PCDCS55	2
6	Roll Pin Zinc Plated 3/8" x 3"	0262-3-8X3	1
7	CL1-B Chain Disc Link	0803-CL1	1

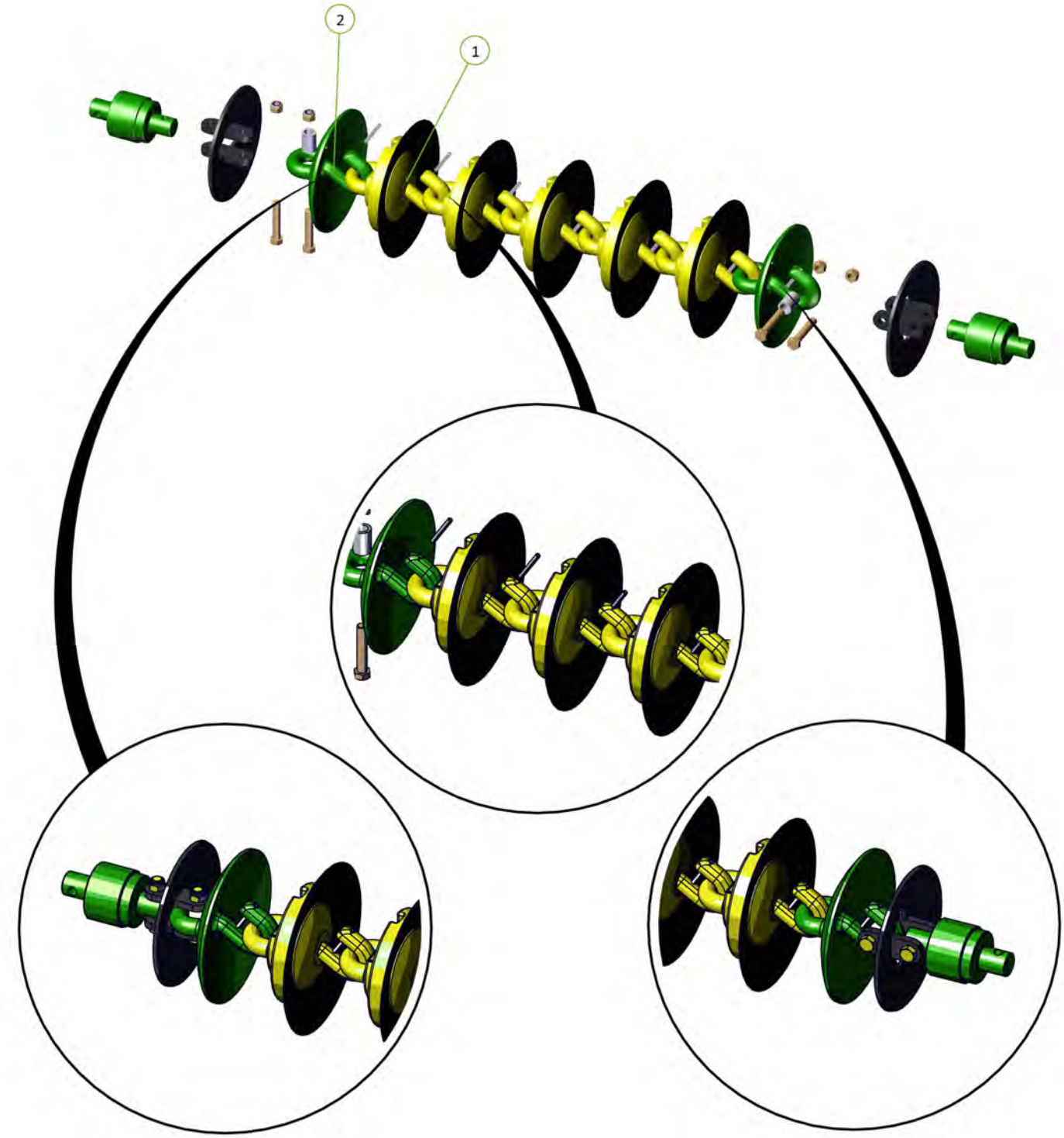




CL2 Disc Chain

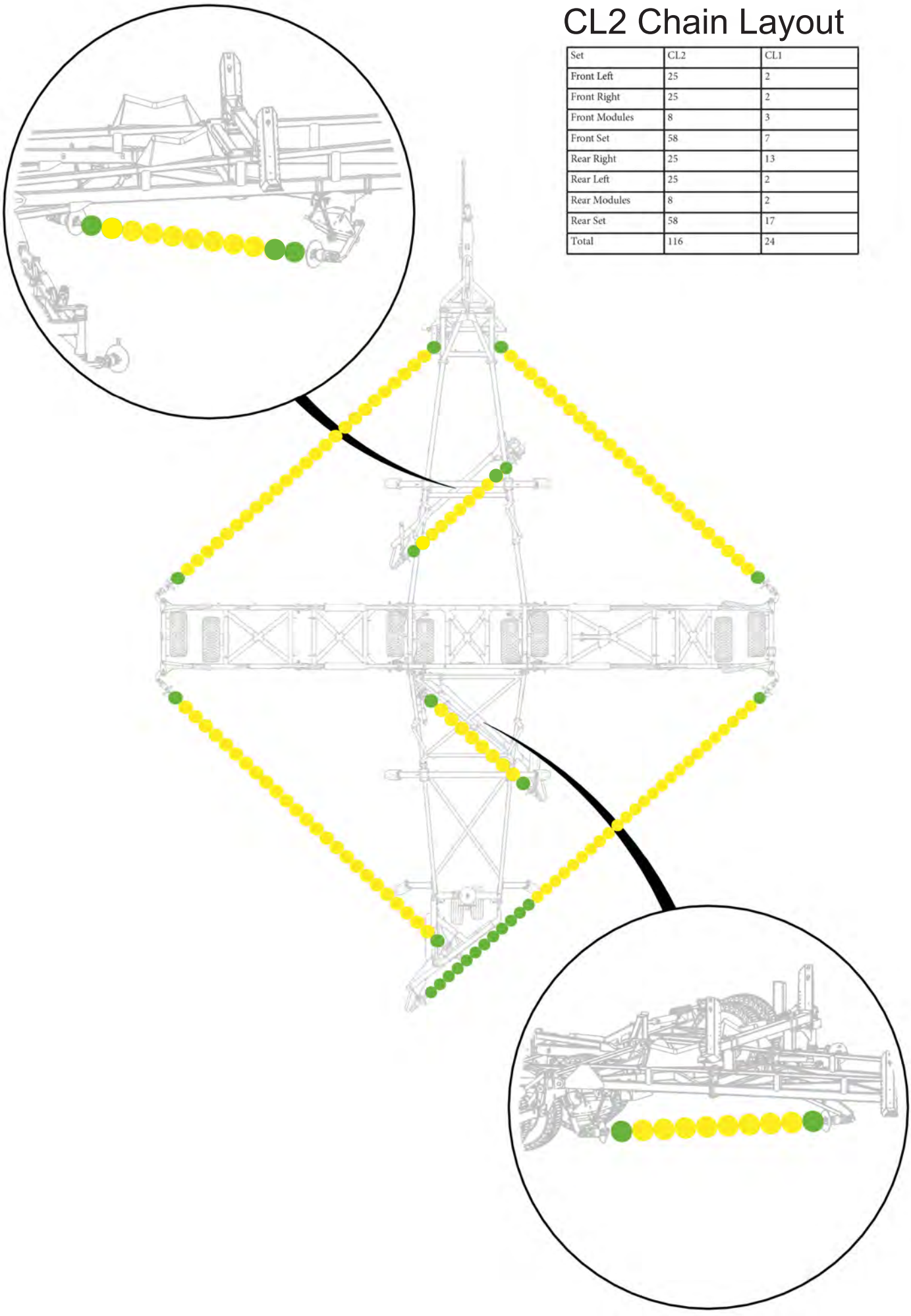
Item No.	Description	Number	Qty
1	0803-CL2-Link Assembly	0803-CL2	1
2	CL1-B Chain Disc Link	0803-CL1	1





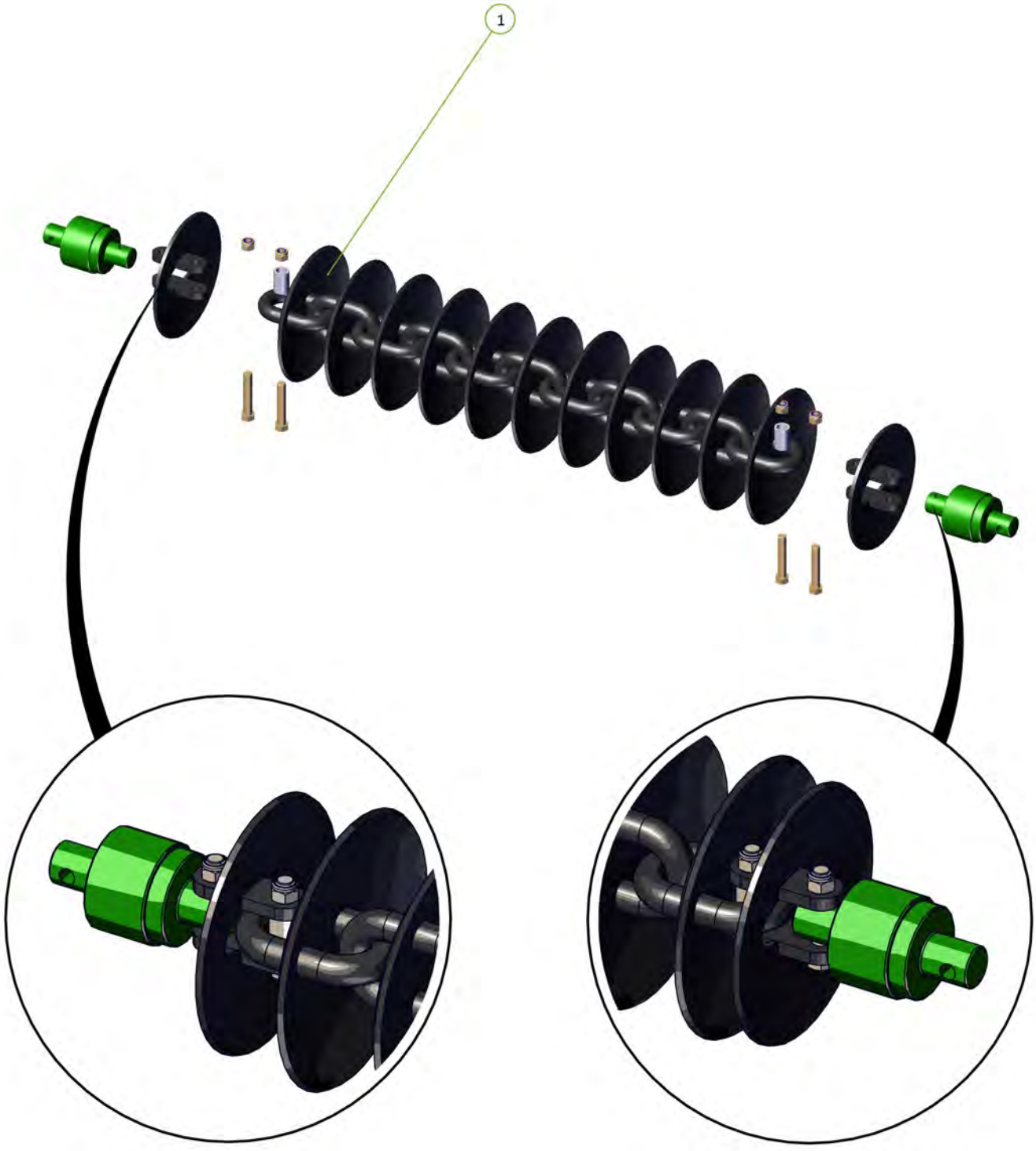
CL2 Chain Layout

Set	CL2	CL1
Front Left	25	2
Front Right	25	2
Front Modules	8	3
Front Set	58	7
Rear Right	25	13
Rear Left	25	2
Rear Modules	8	2
Rear Set	58	17
Total	116	24



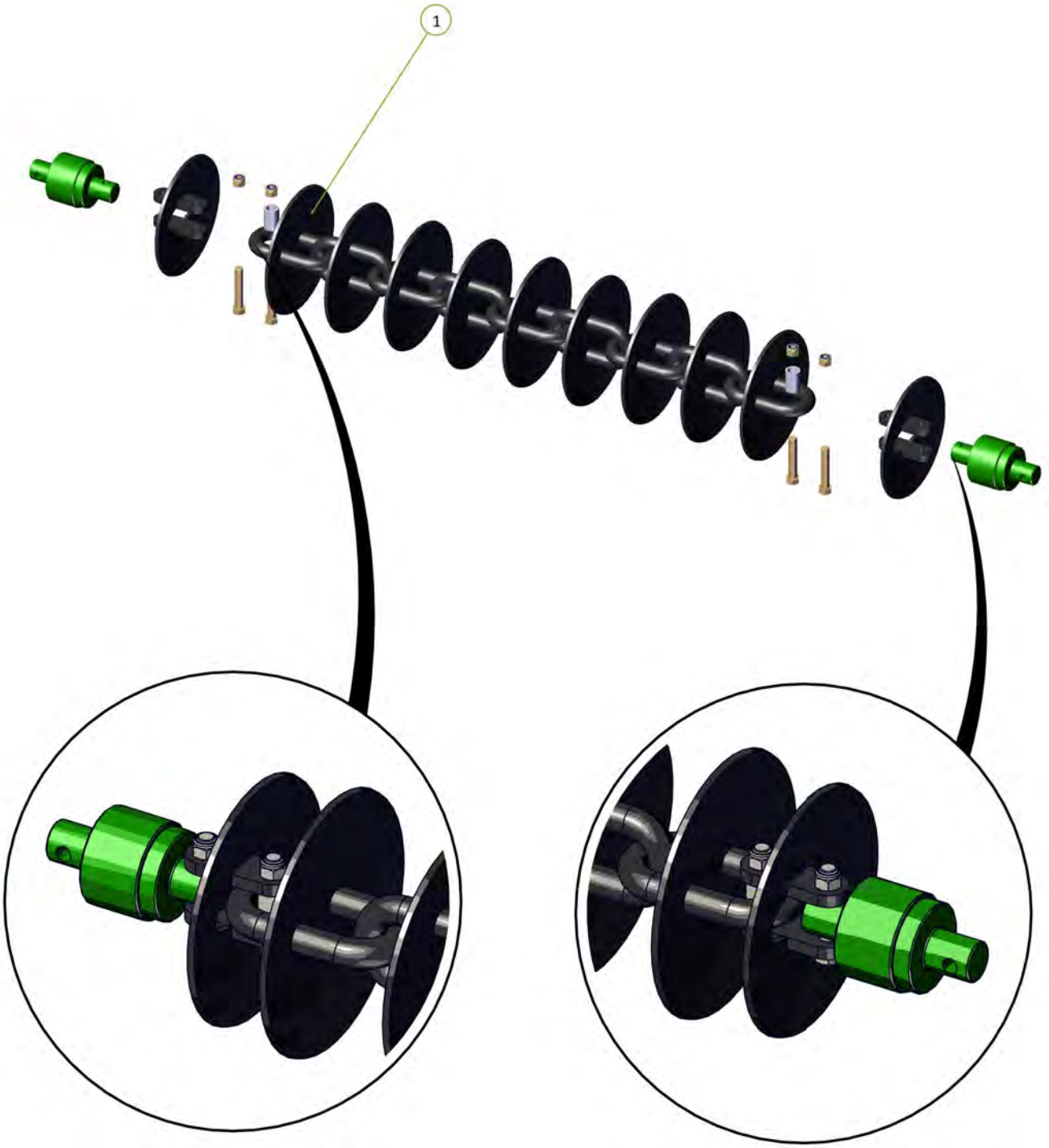
R300 Disc Chain

Item No.	Description	Number	Qty
1	R300 Chain Link	0803-R300	1



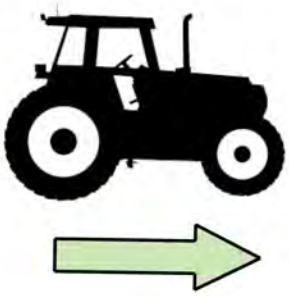
W36 Disc Chain

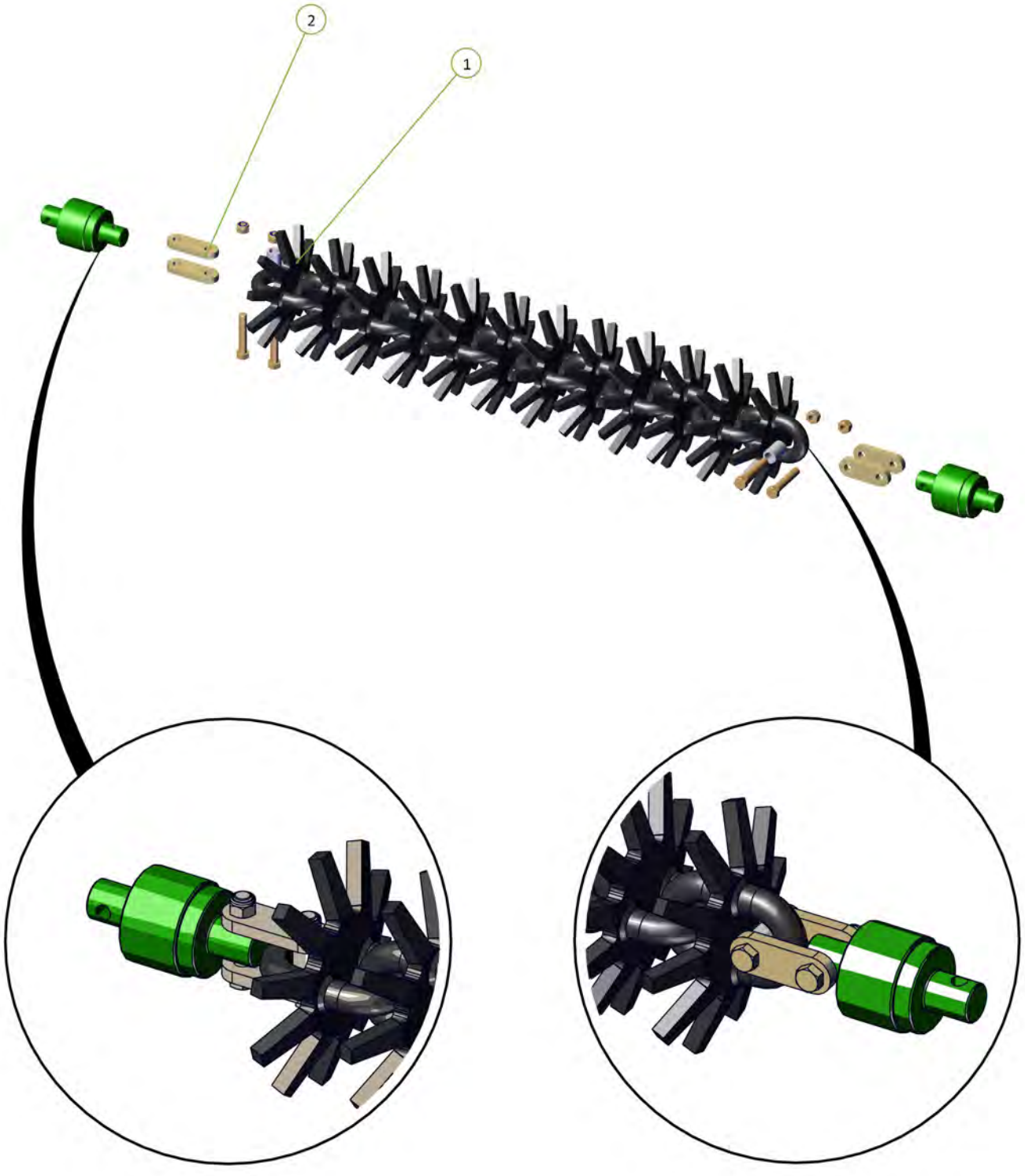
Item No.	Description	Number	Qty
1	W36/25 Chain Link	0803-W36	1



Spike Disc Chain

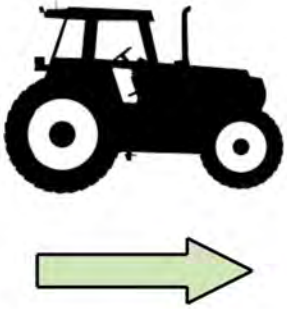
Item No.	Description	Number	Qty
1	10 Spike Disc Chain 49/27/5	0803-SD49	1
2	Tie Plate For 20mm Bolt/ Tie Plate For 24mm Bolt	0800-83.2 / 0800-83.3	4

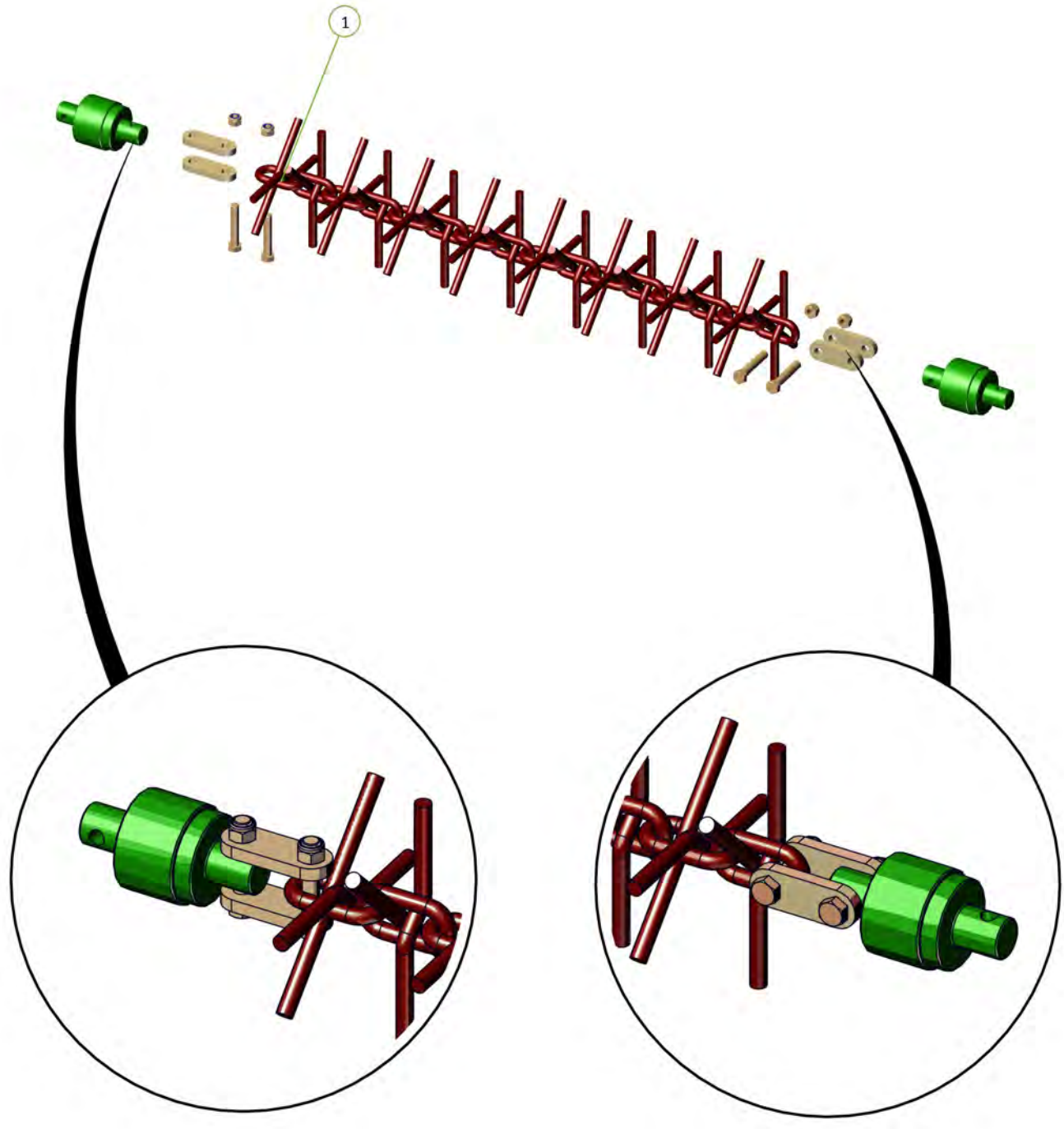




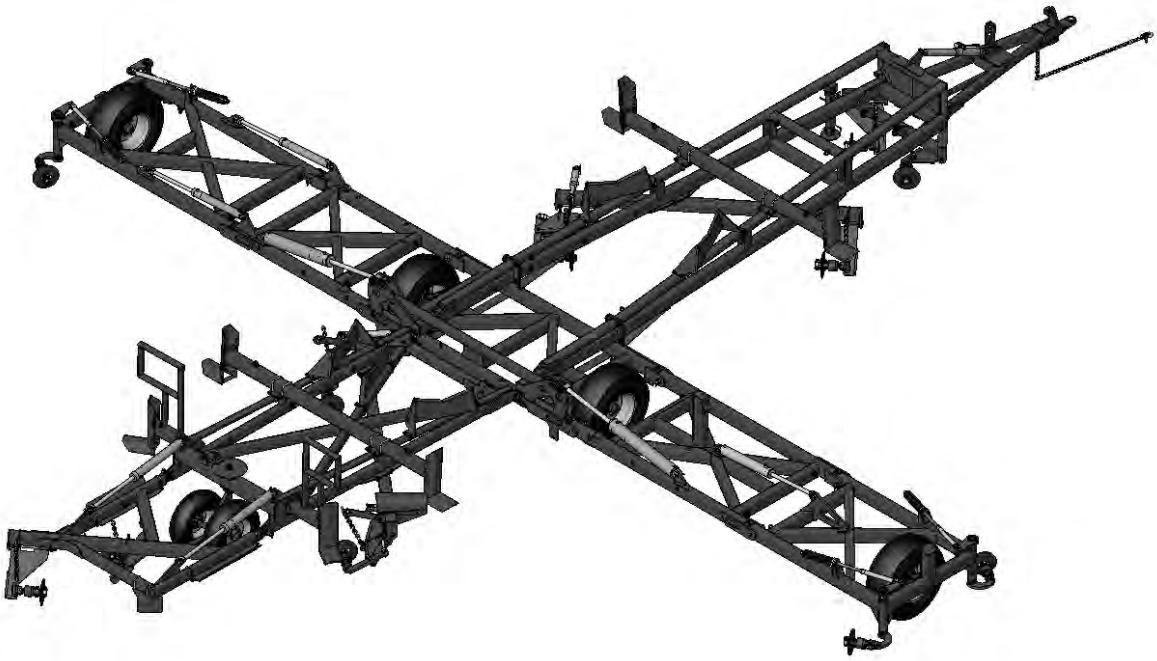
Prickle Chain

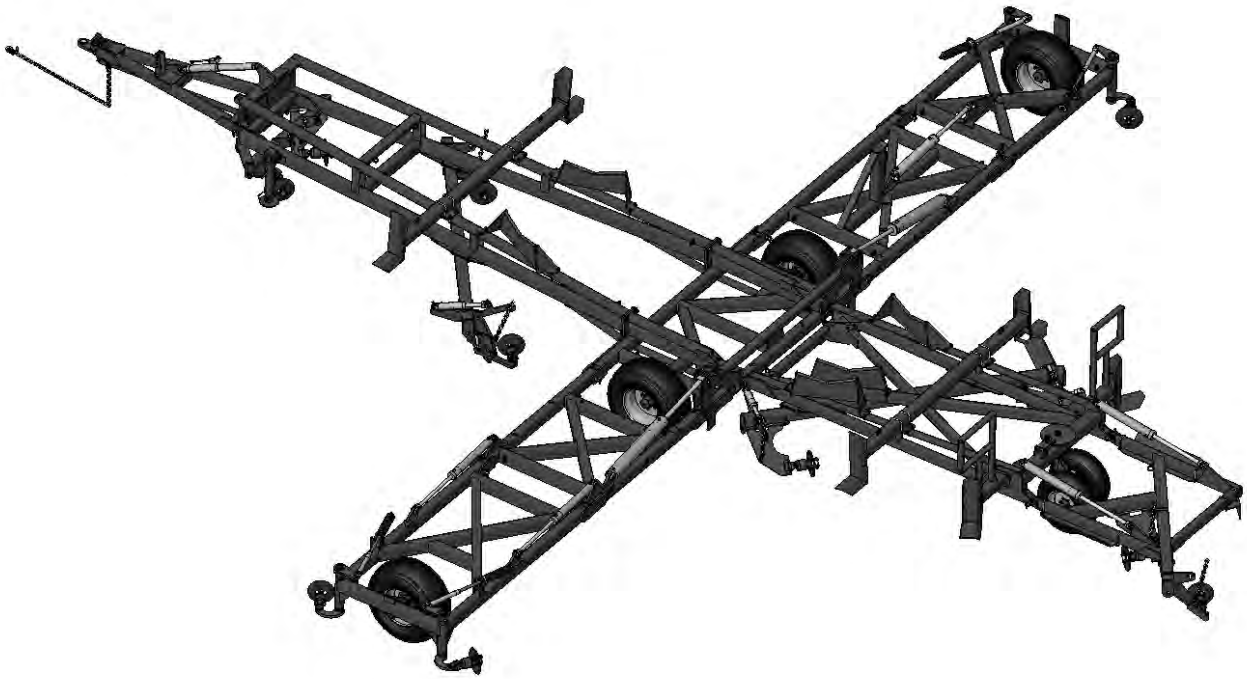
Item No.	Description	Number	Qty
1	Prickle Chain Link	0803-PCH	1

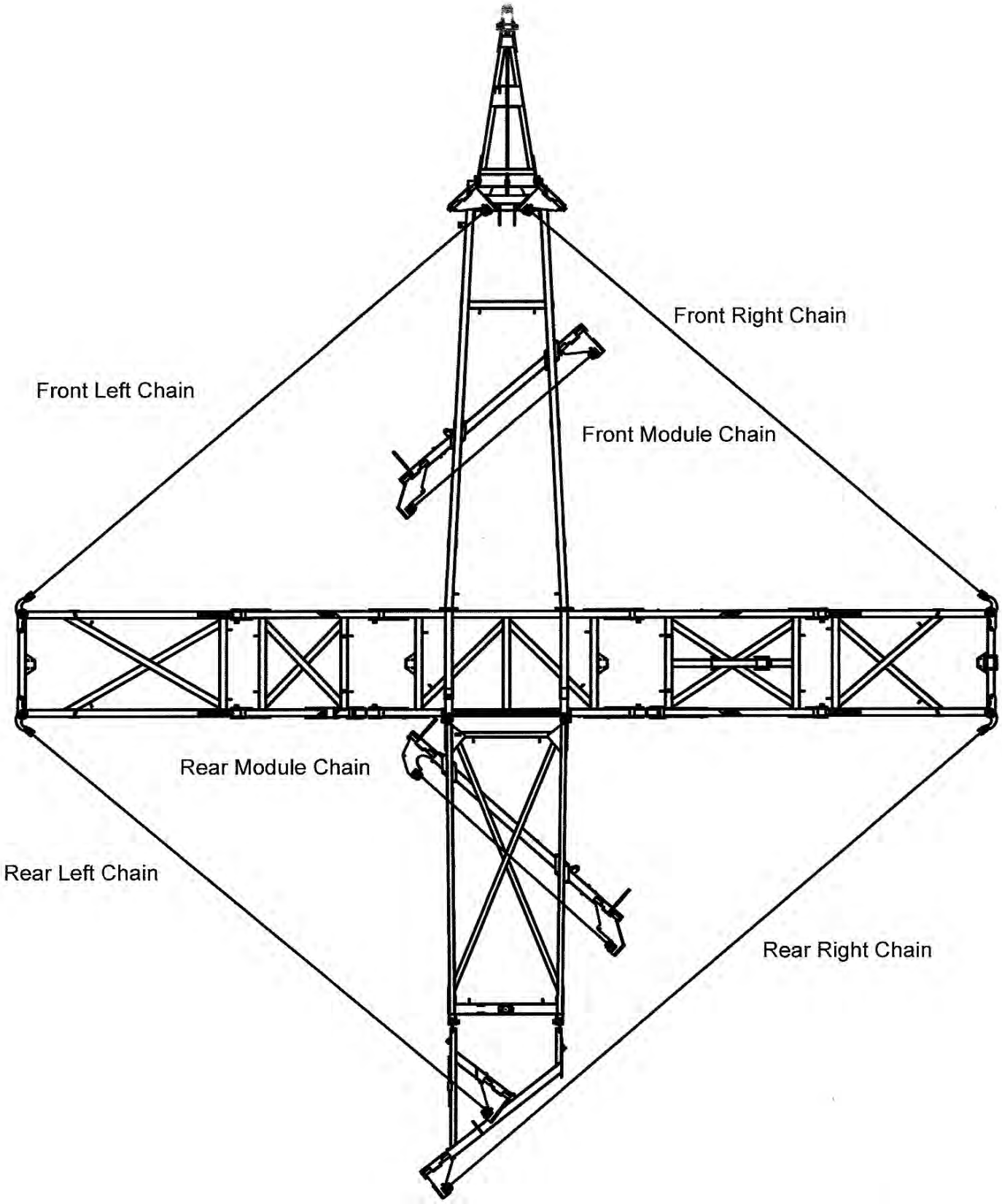




Section 4
Diagrams and Charts





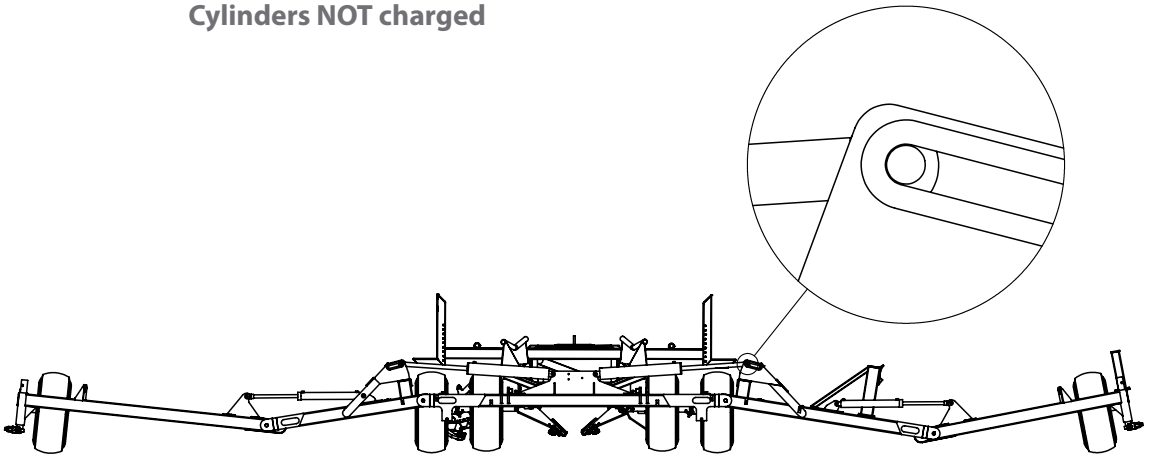

Front Right Chain
Front Left Chain
Front Module Chain
Rear Module Chain
Rear Left Chain
Rear Right Chain

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

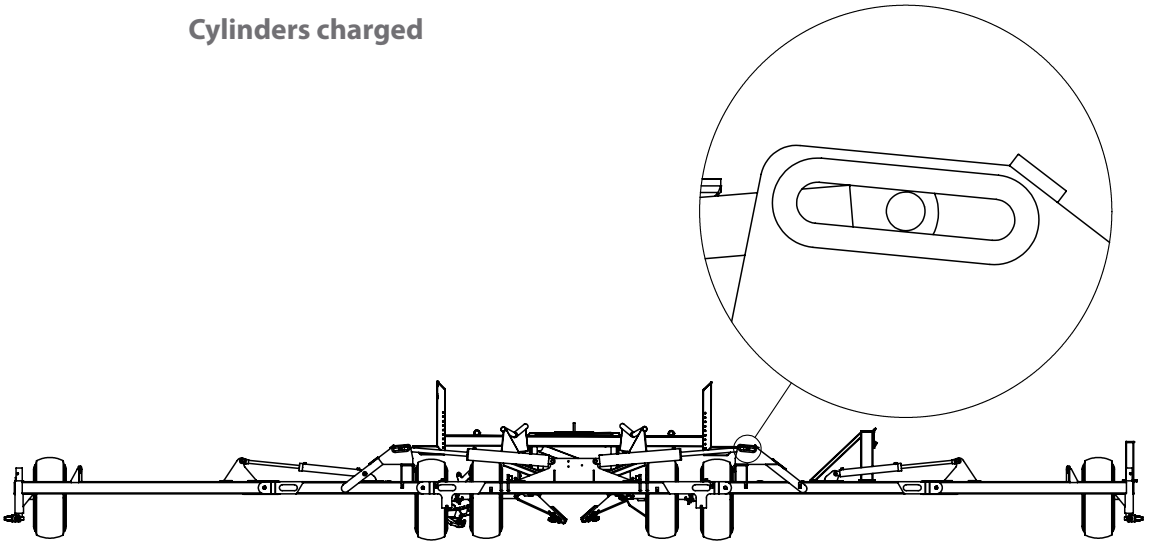
To do this, run the hydraulics through the unfold sequence until the outer wings are straight and the centre cylinders are centred in the slots. (It may take a few minutes for the cylinders to charge completely).

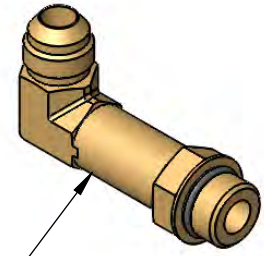
Failure to do this could result in severe personal injury and/or damage to the machine.

Cylinders NOT charged

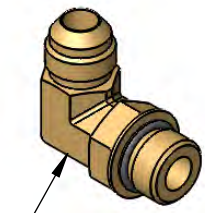


Cylinders charged

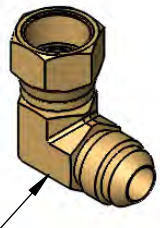




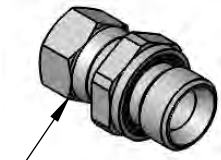
0323-S12-1212



0323-S91-1212

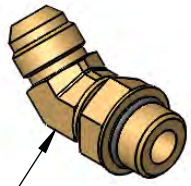


0323-S15-1212



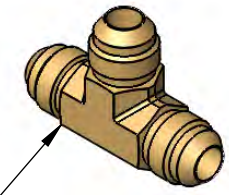
0323-S71-0812

0323-S74-0812



0323-S88-1212

0323-S90



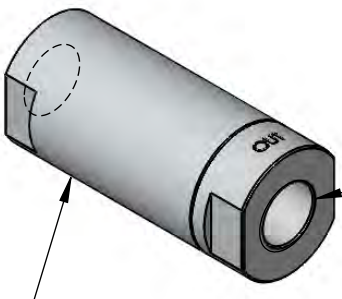
0324-S19-121212

0324-S67-121212

0324-S92-121212

0324-S68-121212

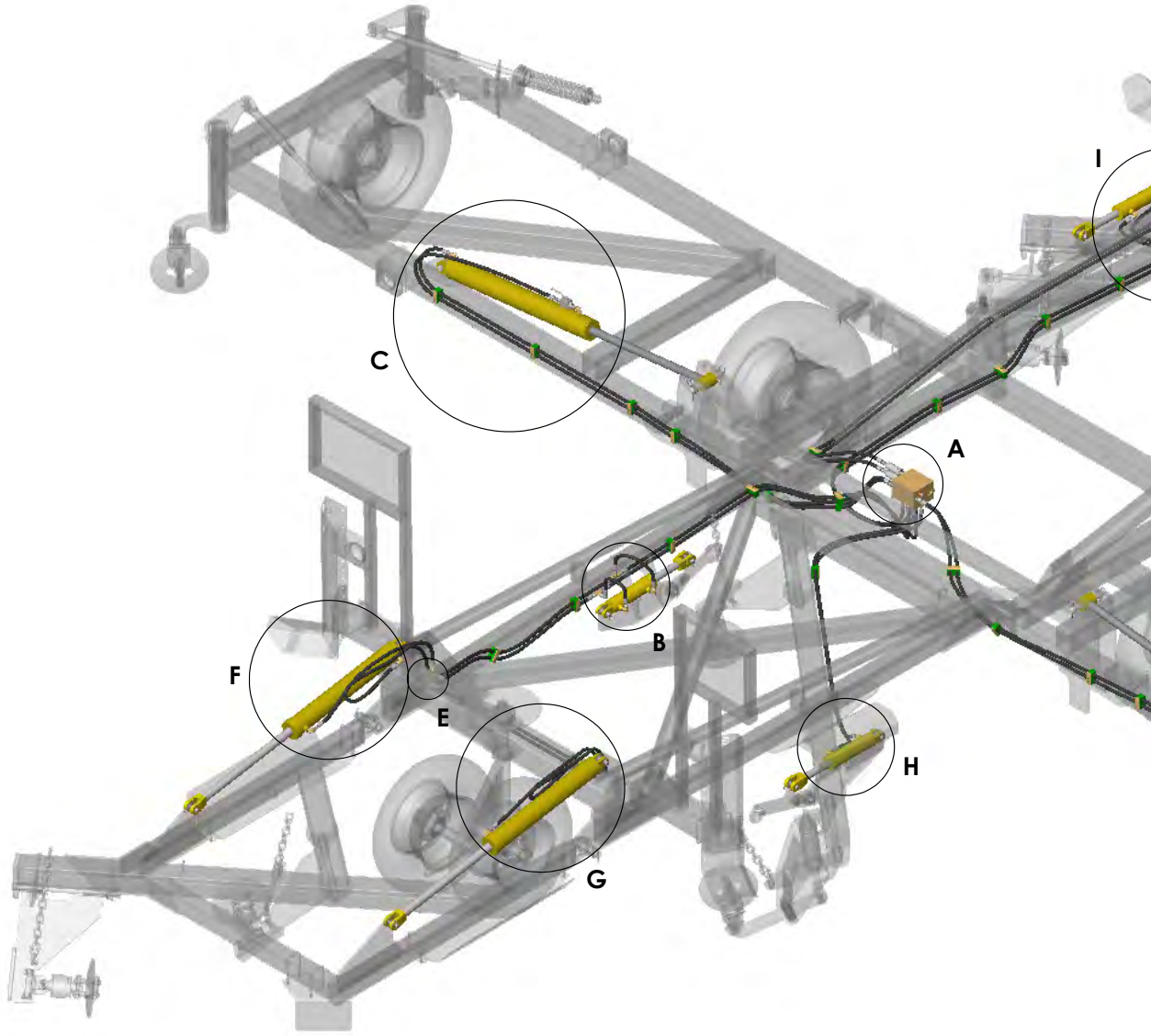
0325-R91-08M

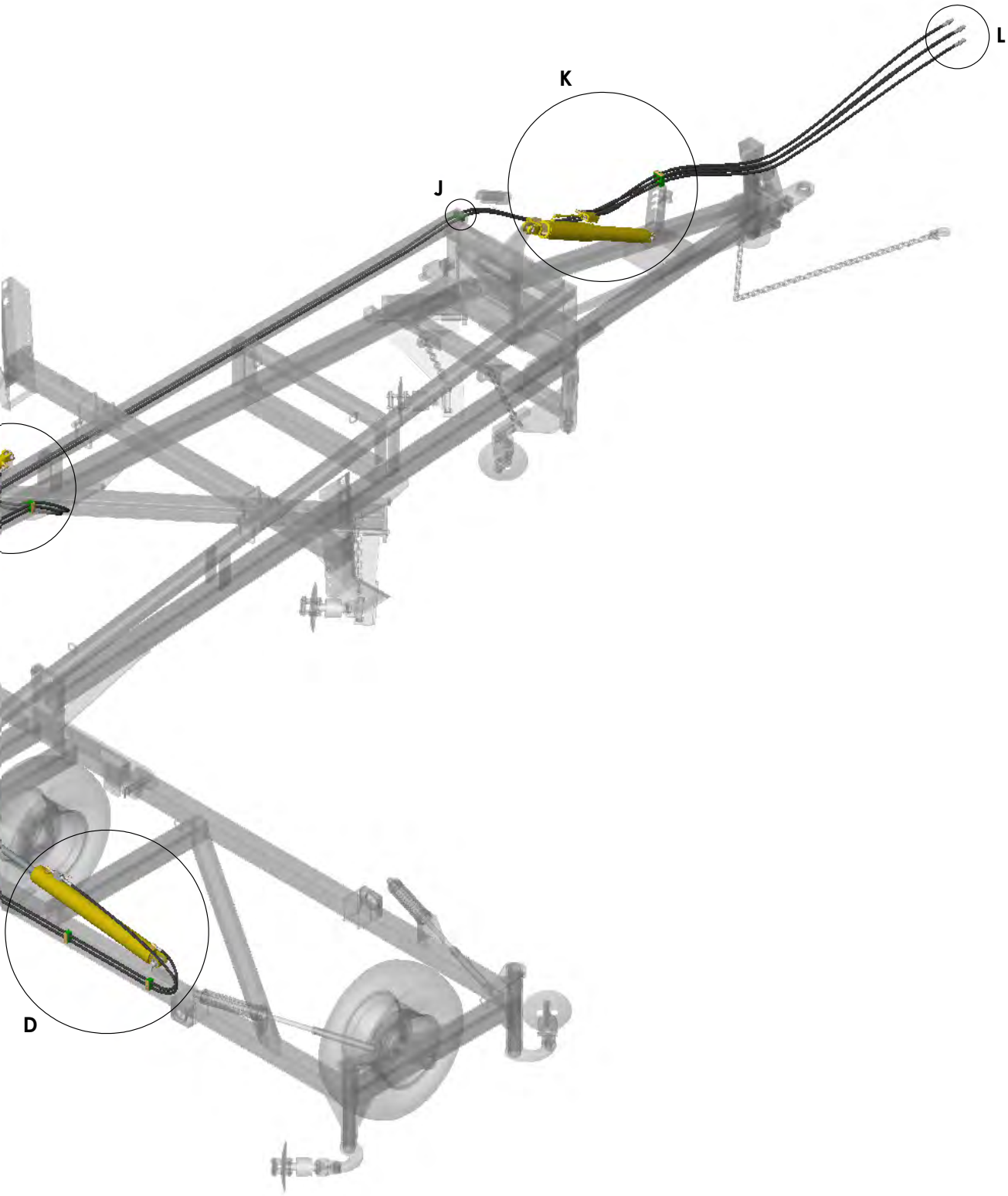


Note: Fit this end to valve block

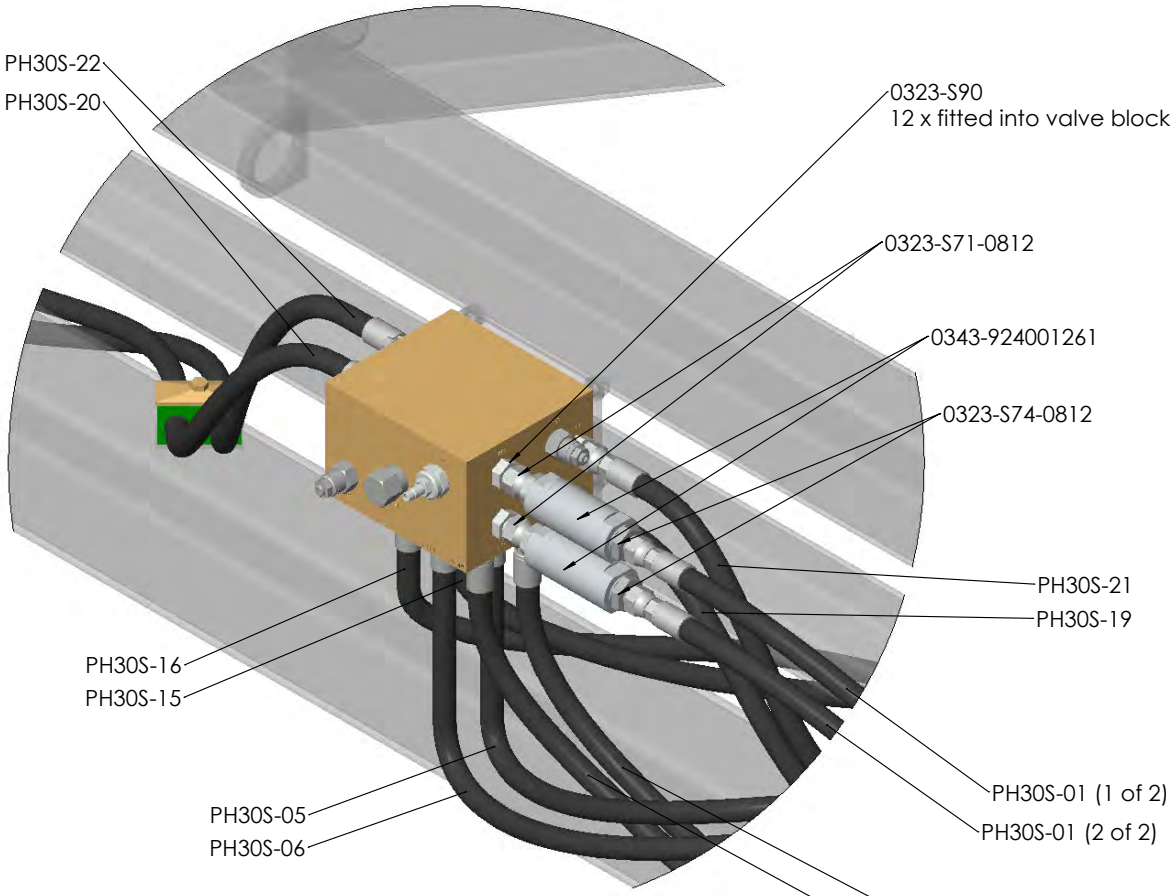
0343-924001261

Hydraulic Layout

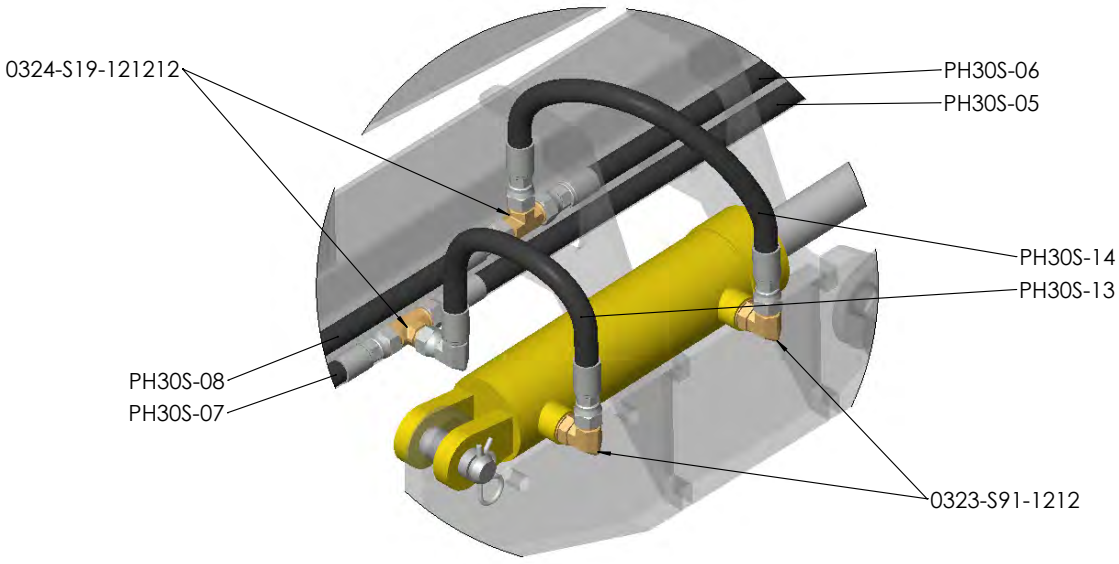



L
K
J
D

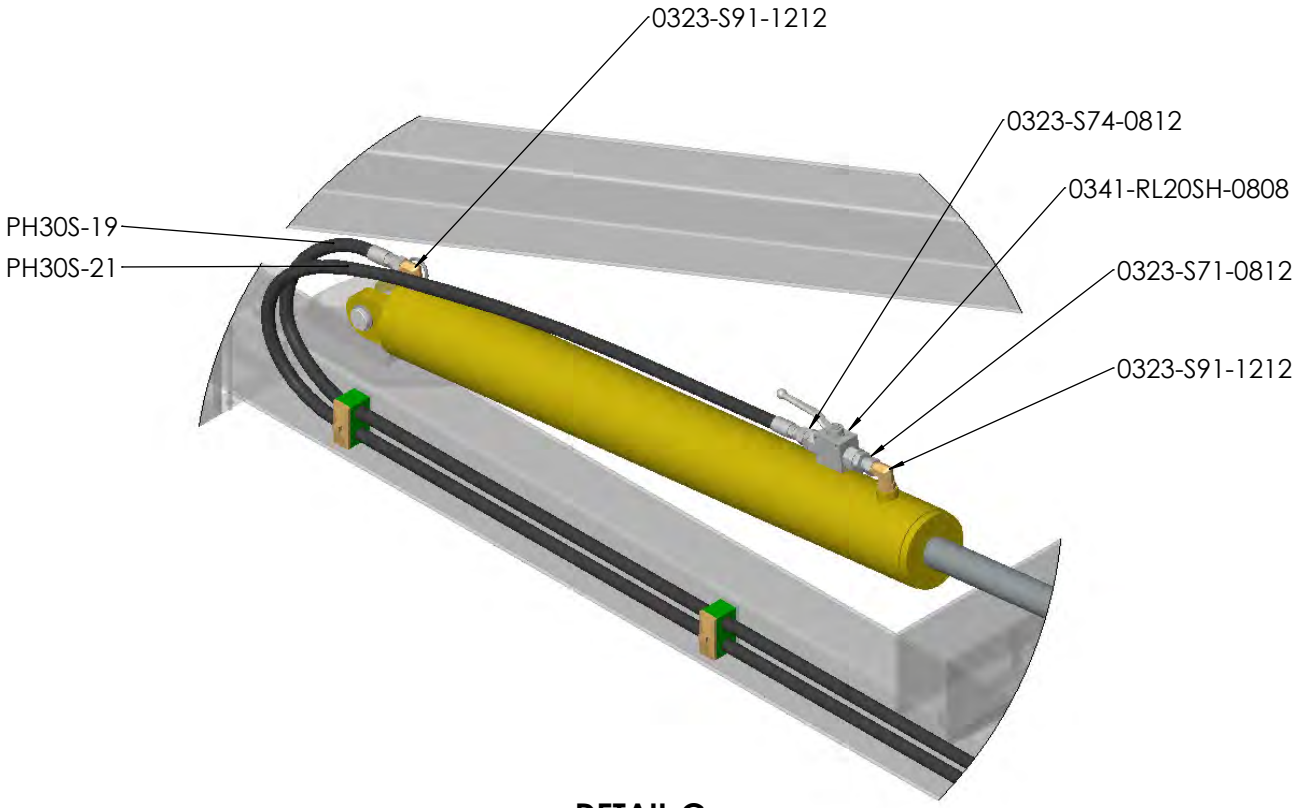
PLEASE REFER TO ASSEMBLY UPDATE 020 & 036 IN THE BACK OF THE MANUAL



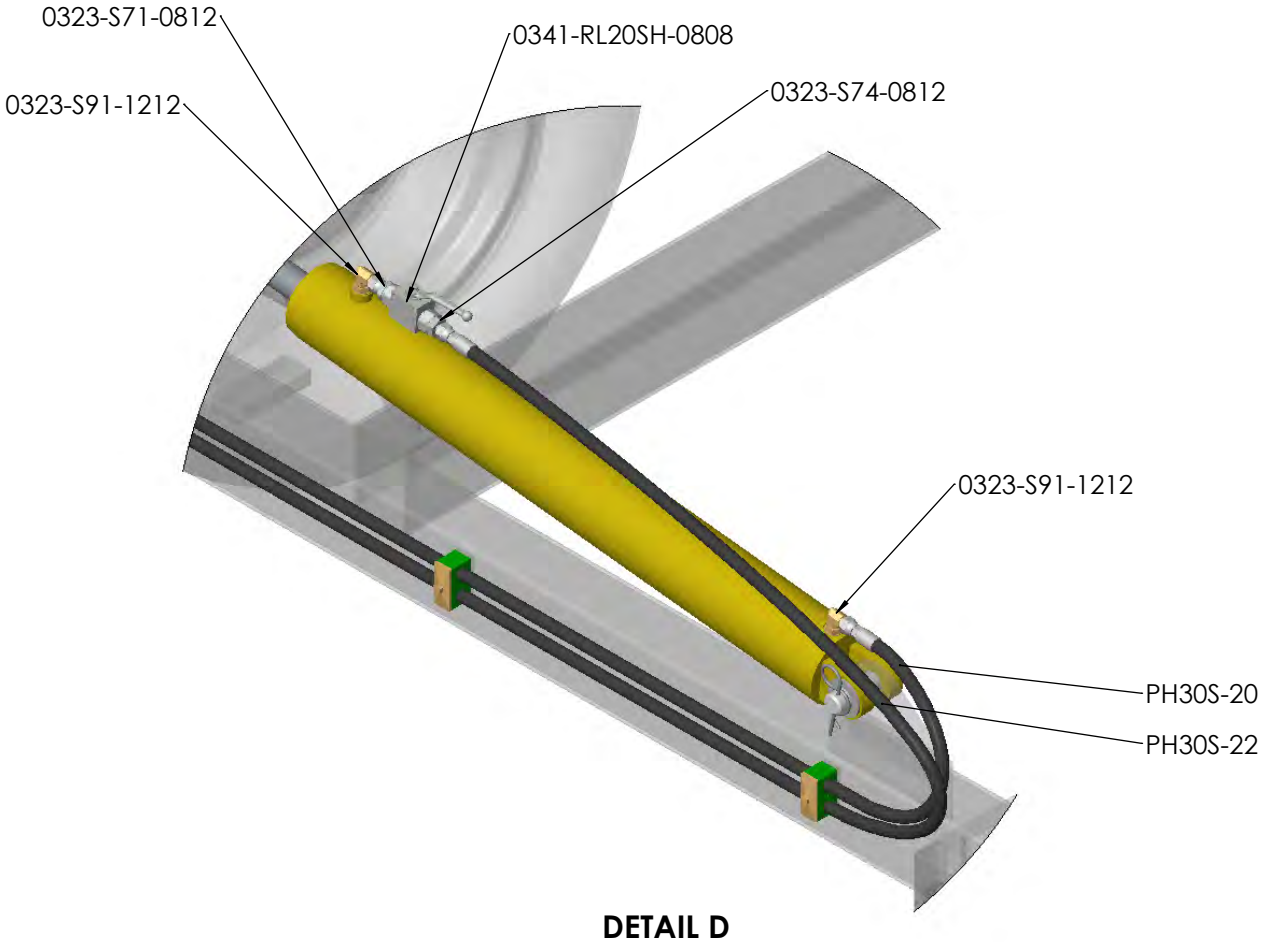
DETAIL A
Reverse View



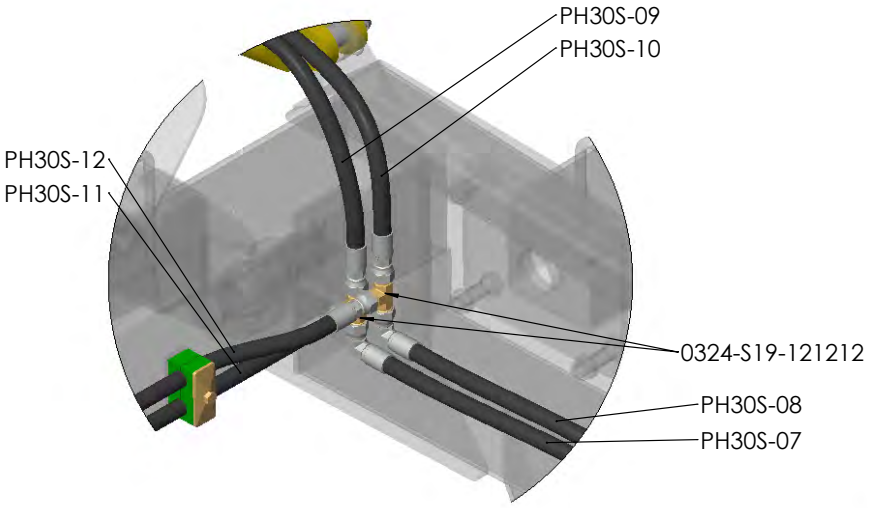
DETAIL B



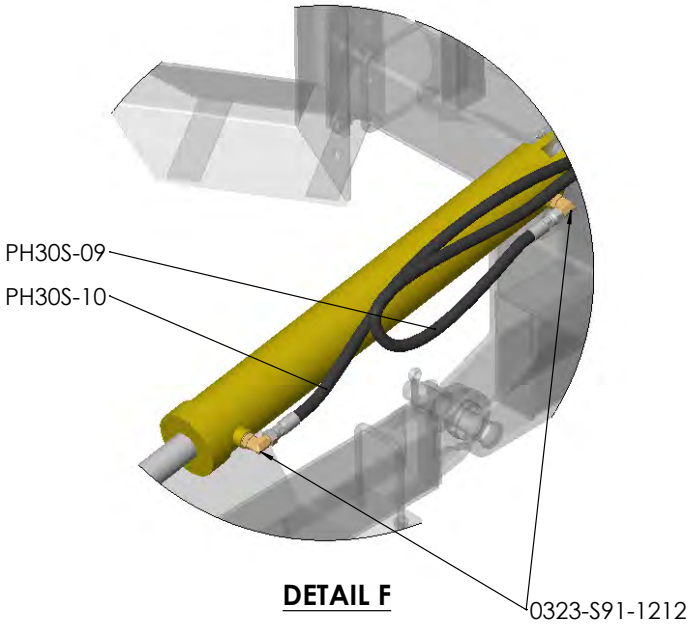
DETAIL C



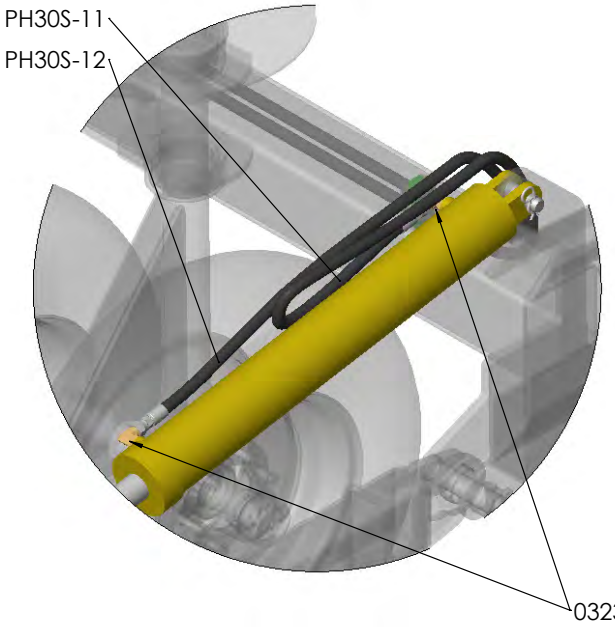
DETAIL D



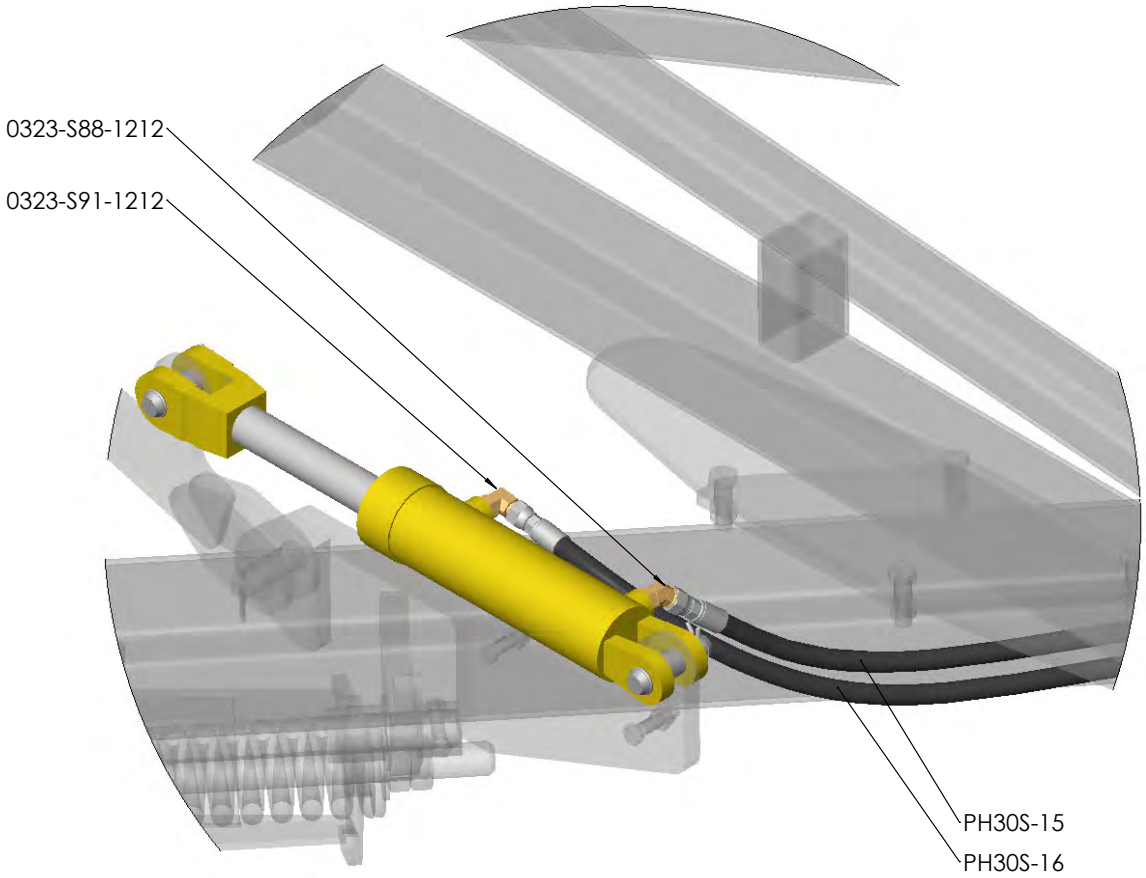
DETAIL E
Reverse View



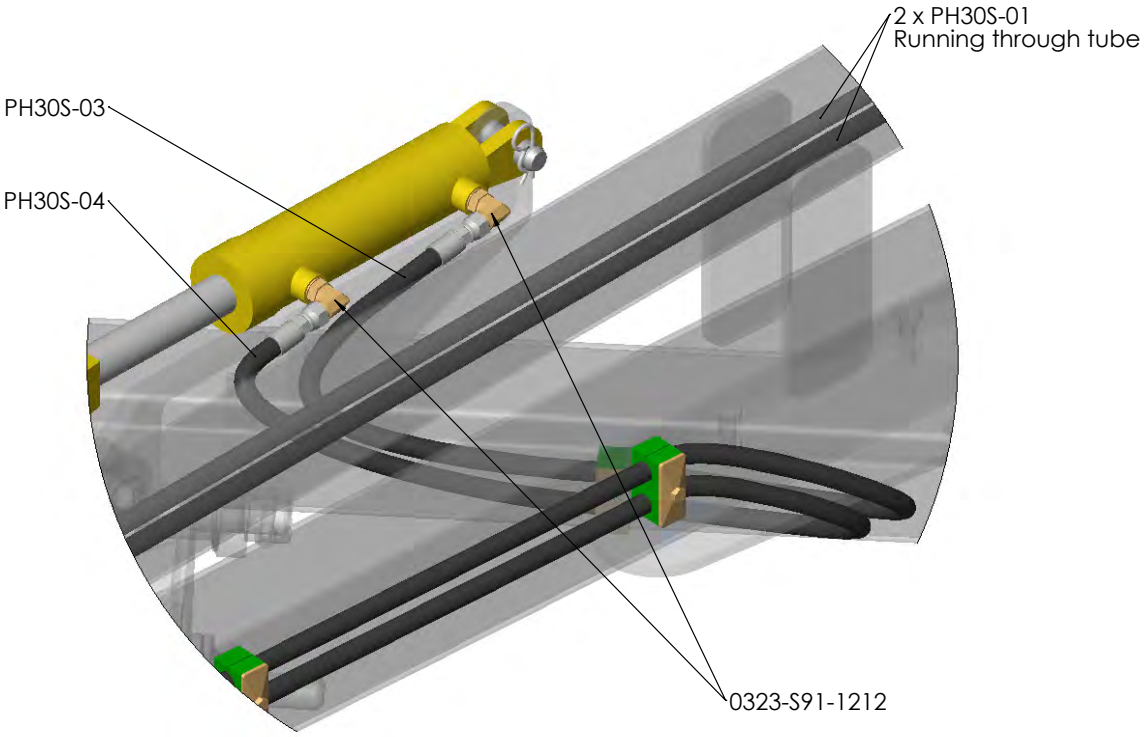
DETAIL F



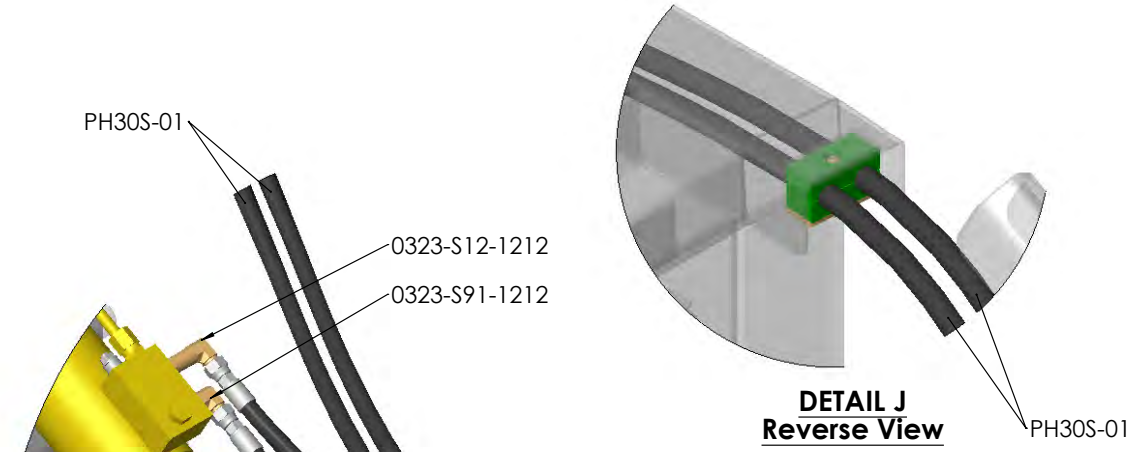
DETAIL G



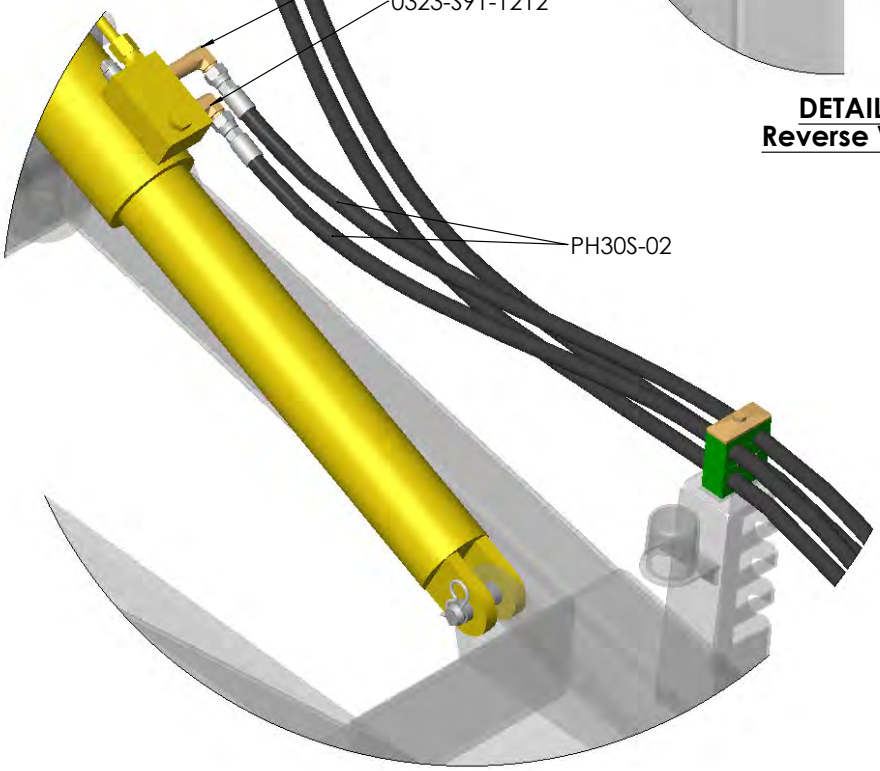
DETAIL H
Reverse View
Cover Removed



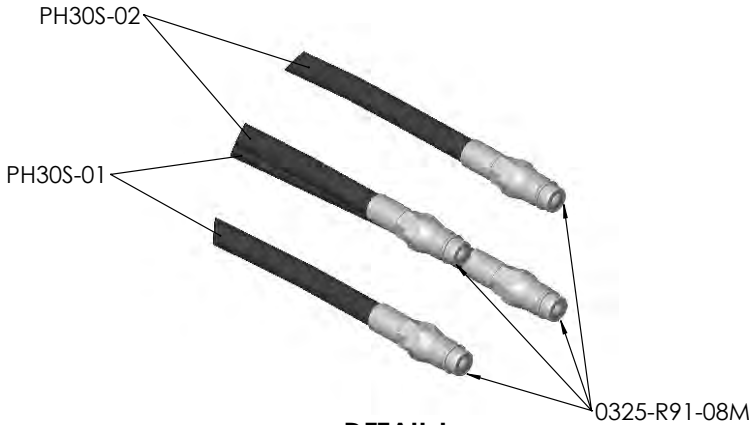
DETAIL I



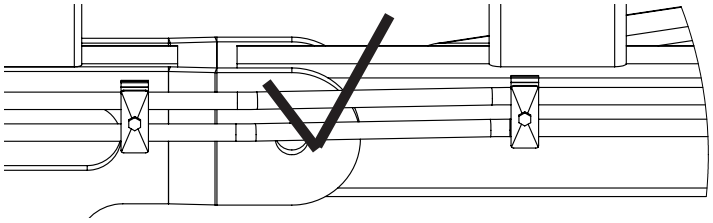
DETAIL J
Reverse View



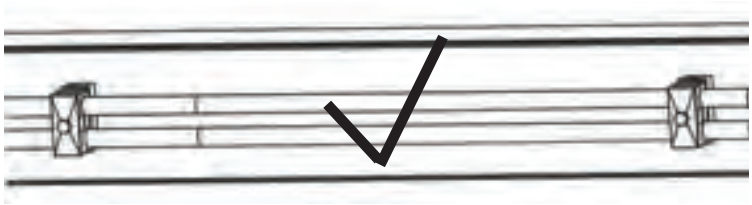
DETAIL K
Reverse View

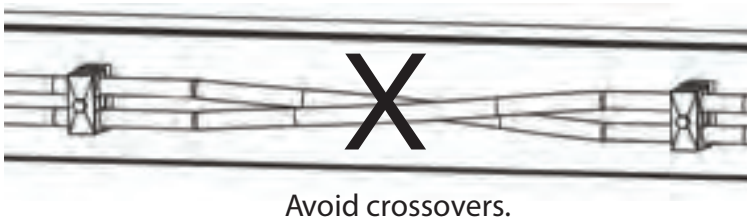


DETAIL L
Reverse View

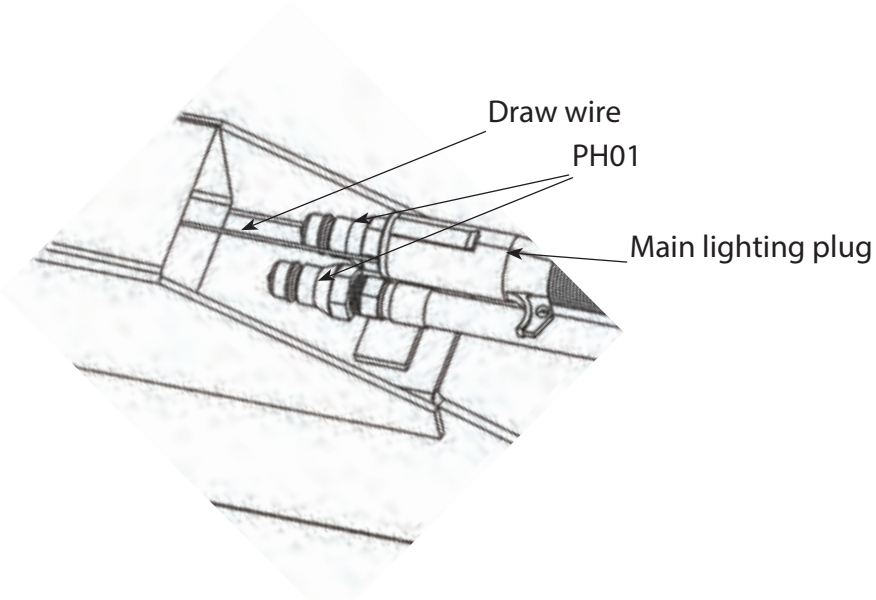


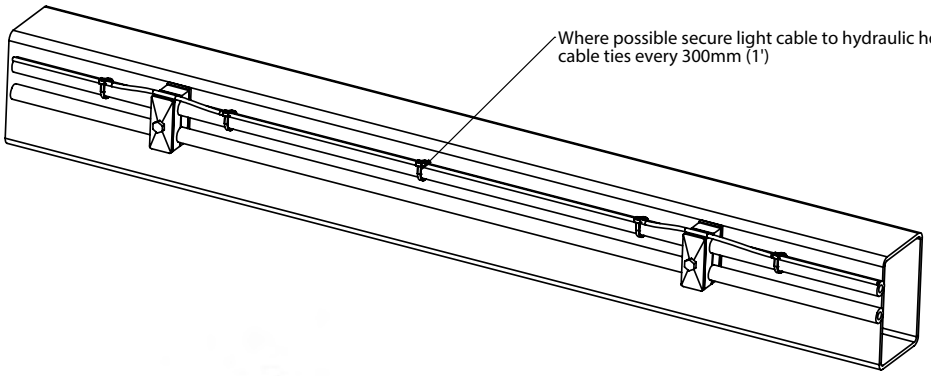
Correct layout of hoses

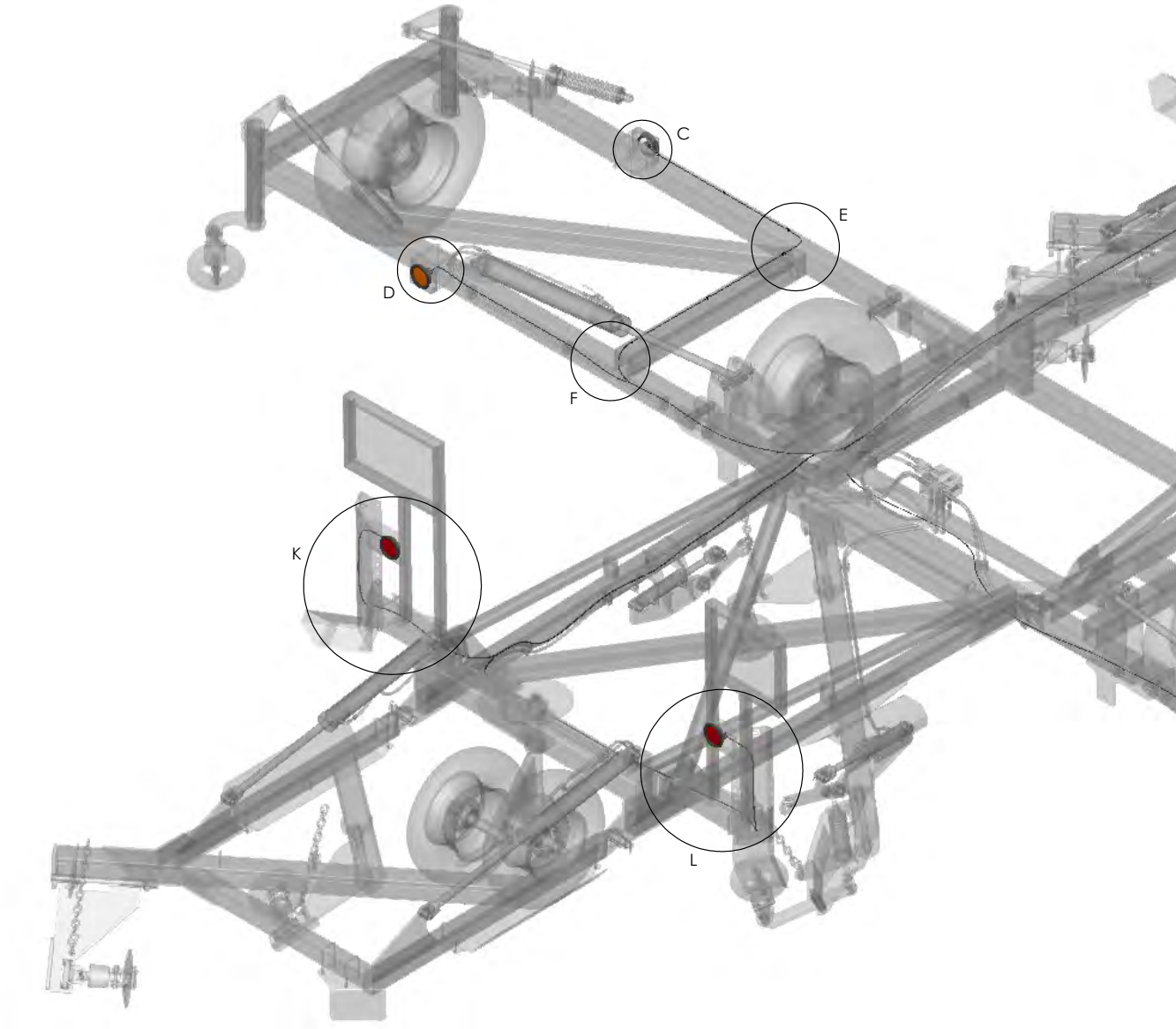


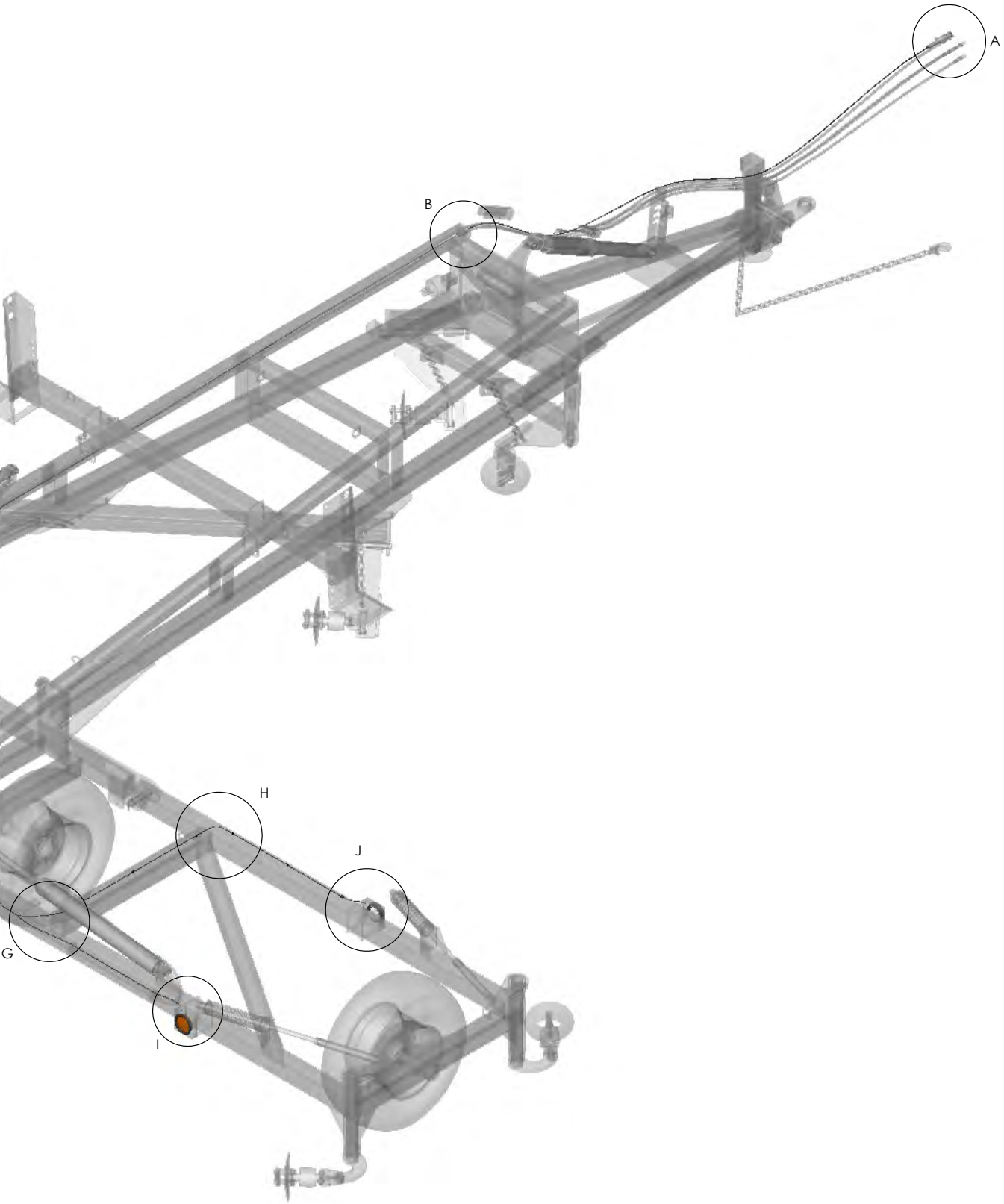


Avoid crossovers.

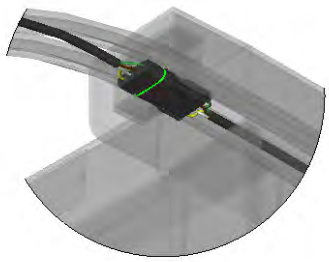



Where possible secure light cable to hydraulic hoses with cable ties every 300mm (1')

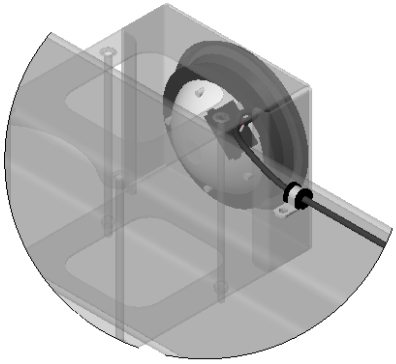

C
E
D
F
K
L


A
B
H
J
G
I

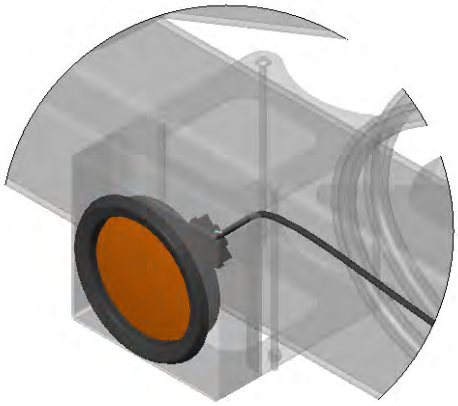
DETAIL A



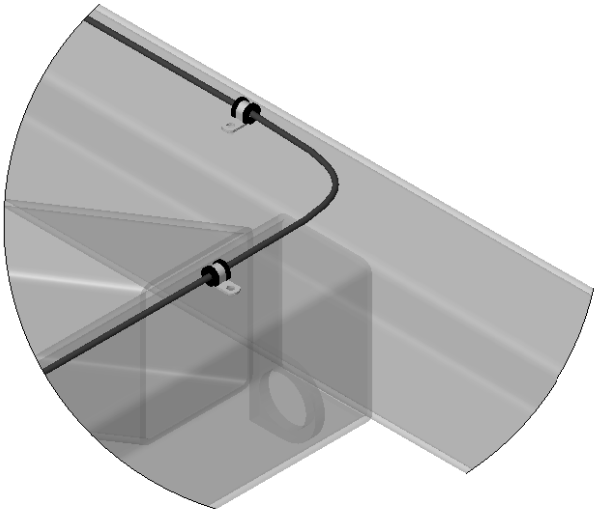
DETAIL B



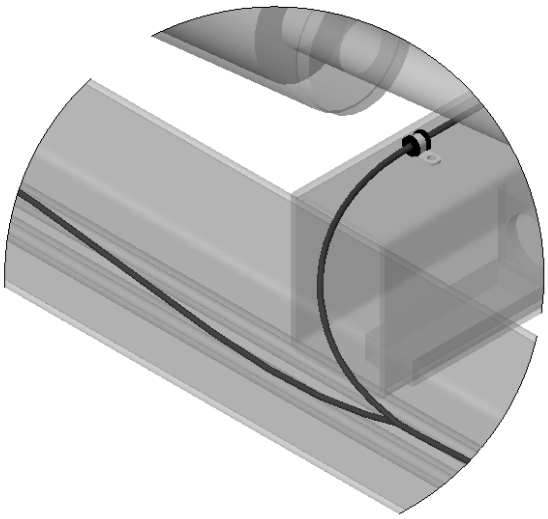
DETAIL C



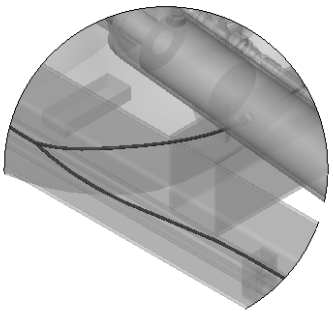
DETAIL D



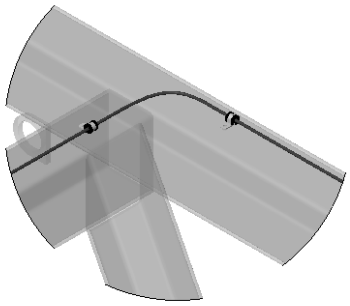
DETAIL E



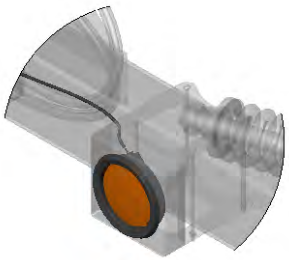
DETAIL F



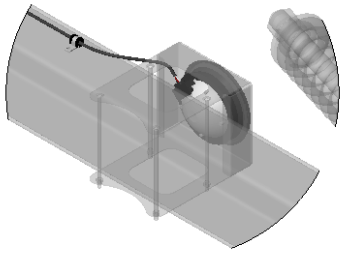
DETAIL G



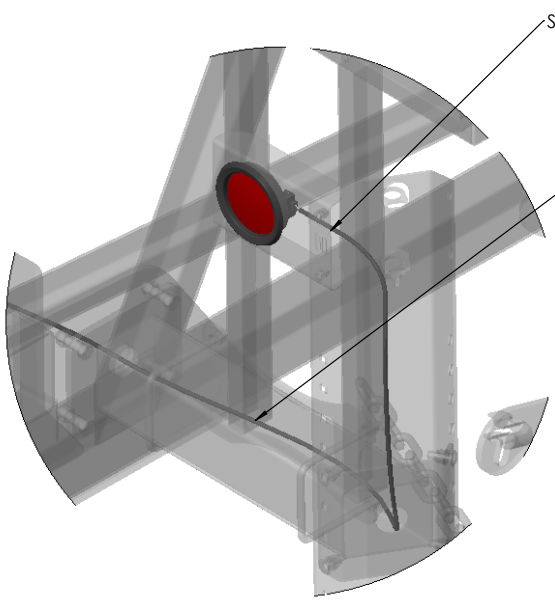
DETAIL H



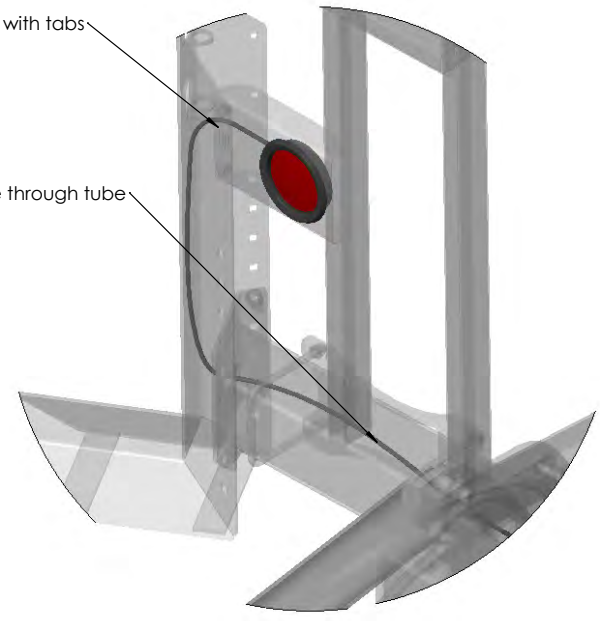
DETAIL I



DETAIL J



DETAIL L

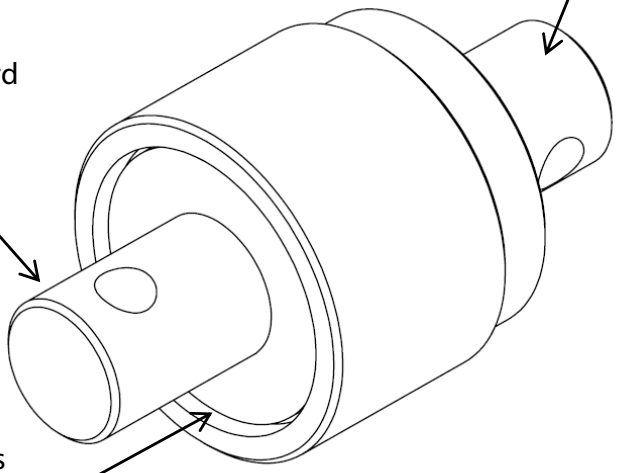


DETAIL K

Mounting Swivels

Fixed housing end of swivel should always face forward

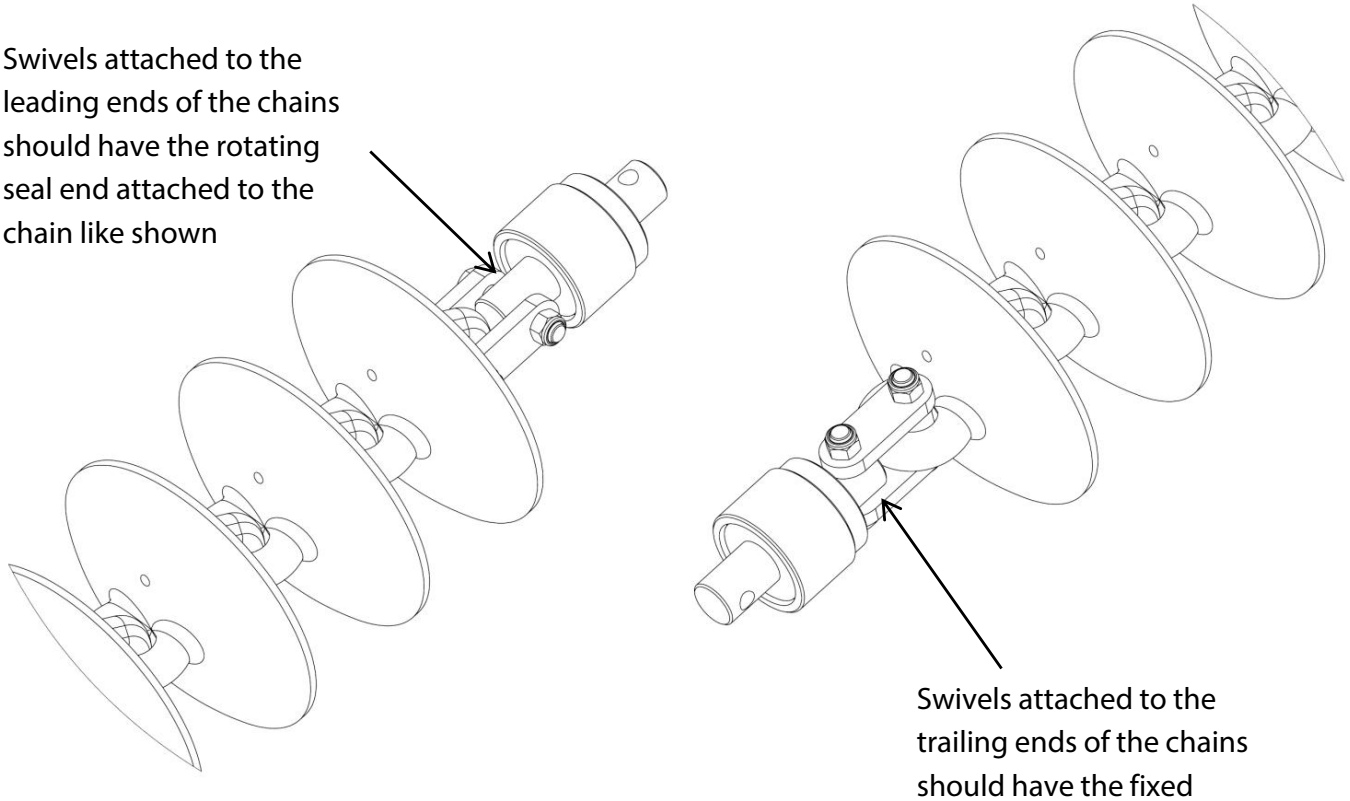
Rotating seal end of swivel should always face rearward



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

For Example

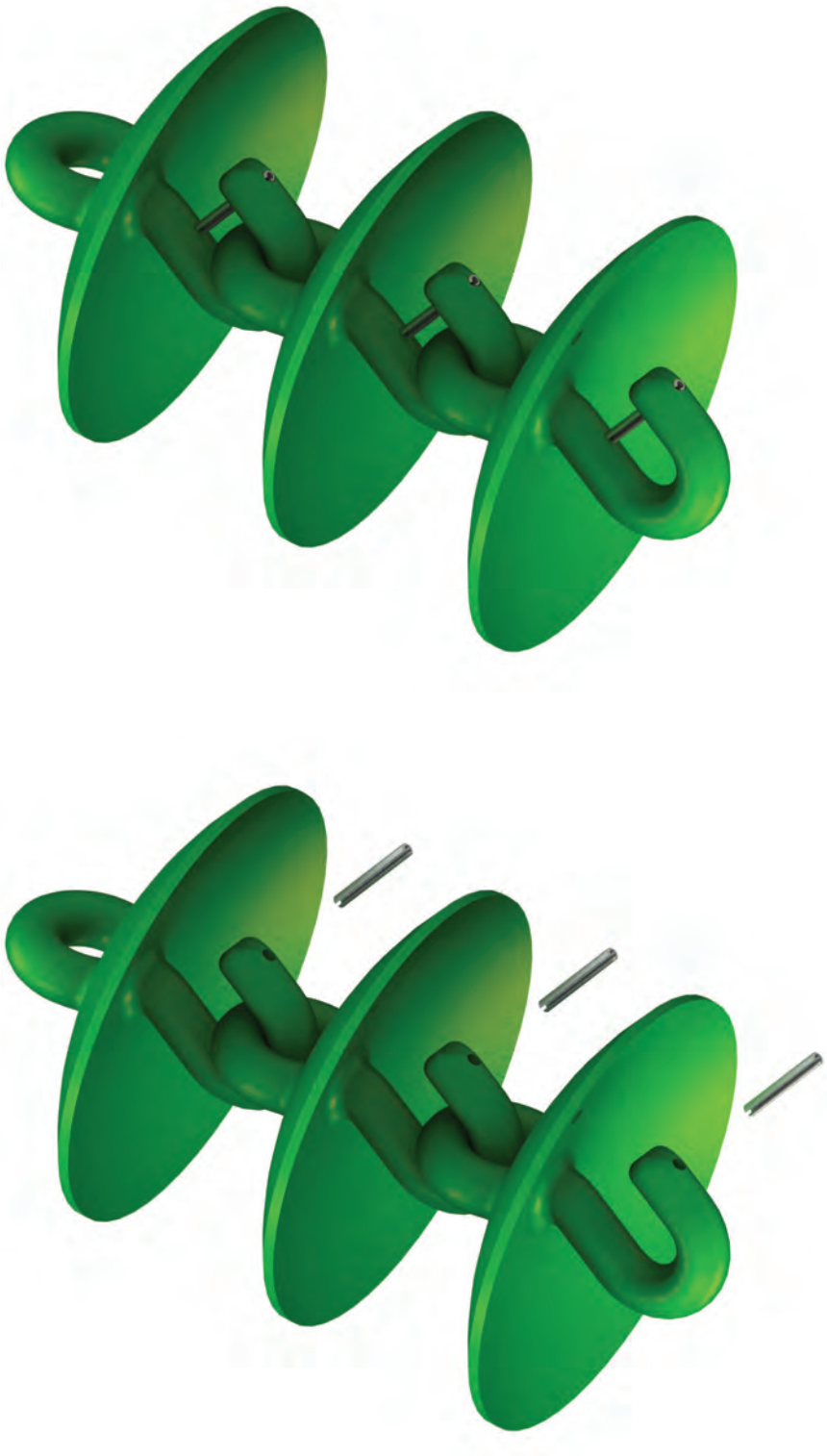
Swivels attached to the leading ends of the chains should have the rotating seal end attached to the chain like shown



Swivels attached to the trailing ends of the chains should have the fixed housing end attached to the chain like 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	30'/9m
Working width	30.5'/9.3m
Transport width	11.5'/3.5m
Transport height	13'/4.0m
Transport length	40.7'/12.4m

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 30		Length	CL2	CL1	W36	R300	SD49	Prickle chain
			CL2 disc chain also requires CL1 disc chain					
30’	Front right	19’/5.8m	CL2 - 25 CL1 - 2	35	35	46	46	64
	Front left	19’/5.8m	CL2 - 25 CL1 - 2	35	35	46	46	64
	Rear right	25.6’/7.8m	CL2 - 25 CL1 - 13	48	47	63	63	87
	Rear left	19’/5.8m	CL2 - 25 CL1 - 2	36	35	46	46	64
	Modules front	7.5’/2.3m	CL2 - 8 CL1 - 3	14	14	19	19	26
	Modules rear	6.6’/2m	CL2 - 8 CL1 - 2	12	12	16	16	22

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 centerd 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 neccessary.
5. Move off with all chains in working position. If neccessary it is acceptabe 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 acheived 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
30	12.9	330

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 body of the module tensioning unit.
Retighten the lock nut.
If more than 8" (200mm) of thread is exposed then a link should be removed to maintain correct adjustment.

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.

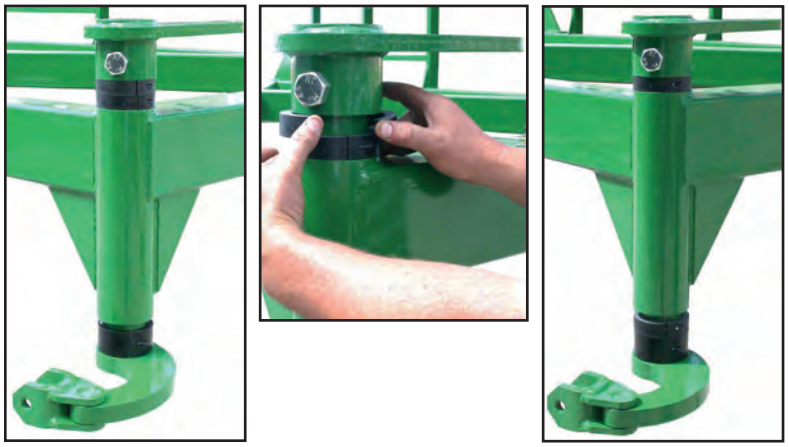
Settings for correct working height

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

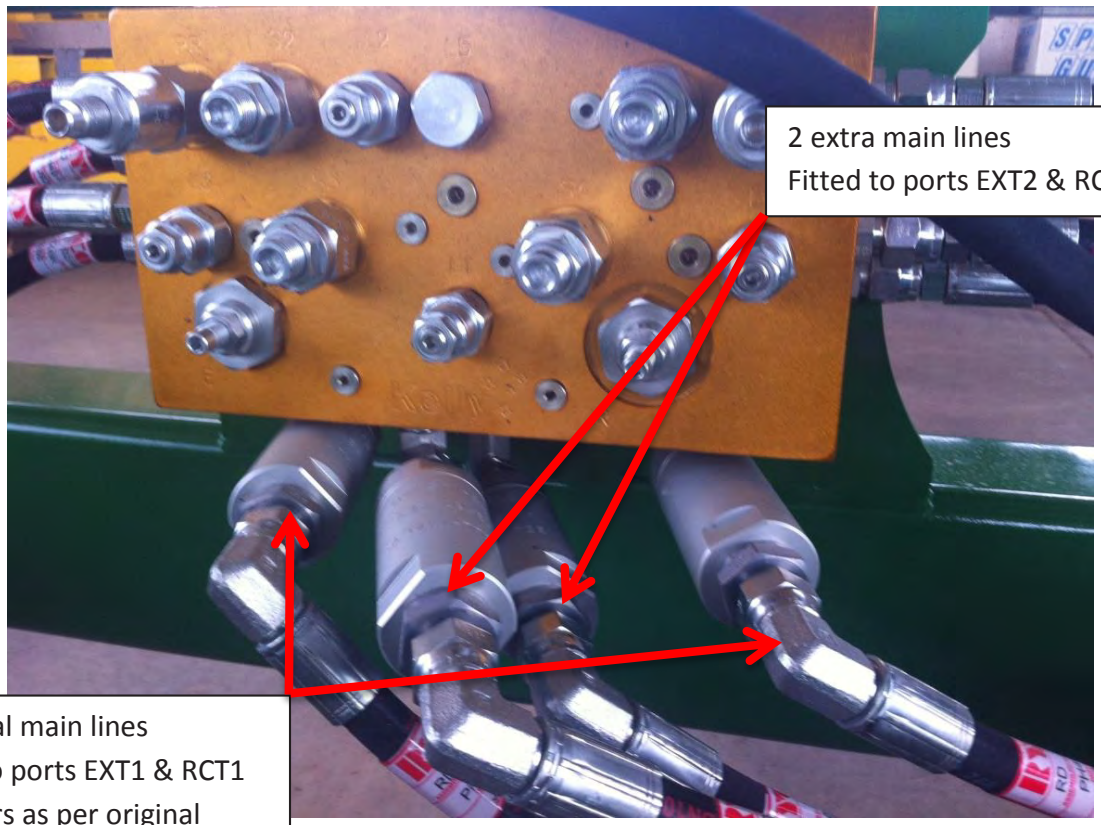
Adjustment

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.



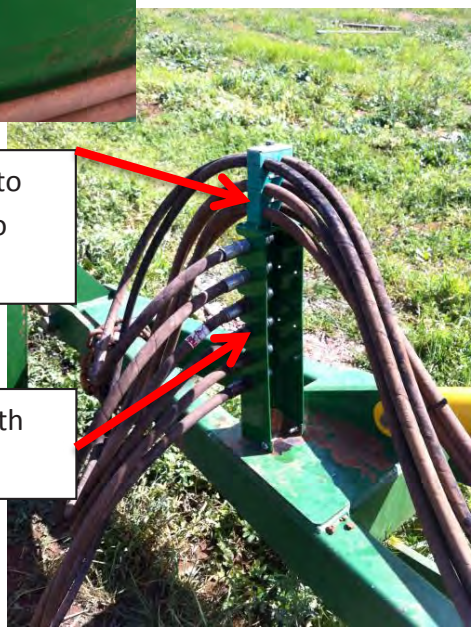
Hydraulic Valve Block



2 extra main lines
Fitted to ports EXT2 & RCT2

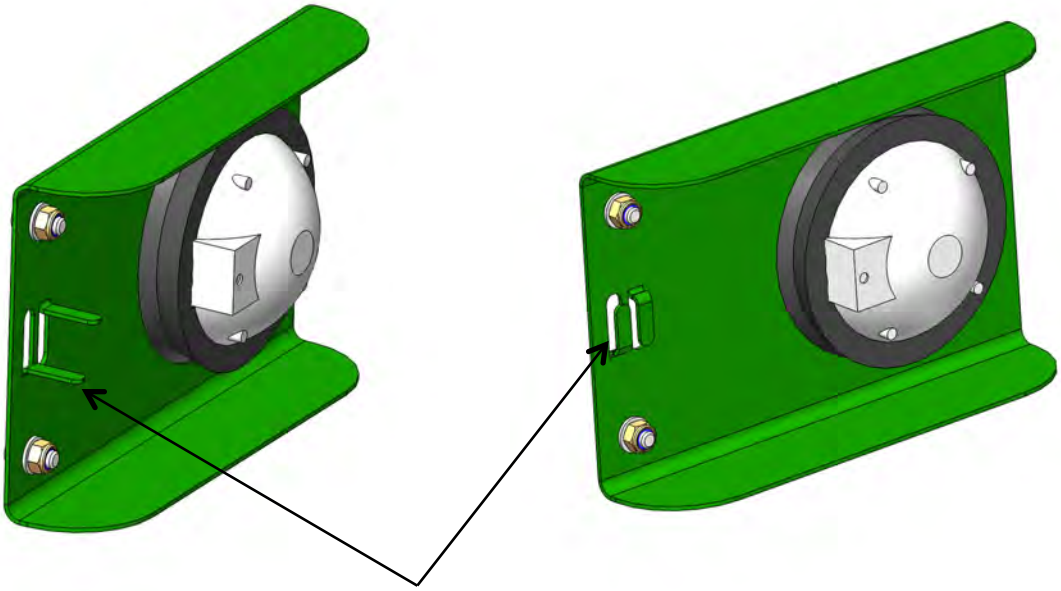
2 original main lines
Fitted to ports EXT1 & RCT1
Via filters as per original
OUT end of filter to valve block

Extra stack clamp added to mount extra main lines to existing main lines



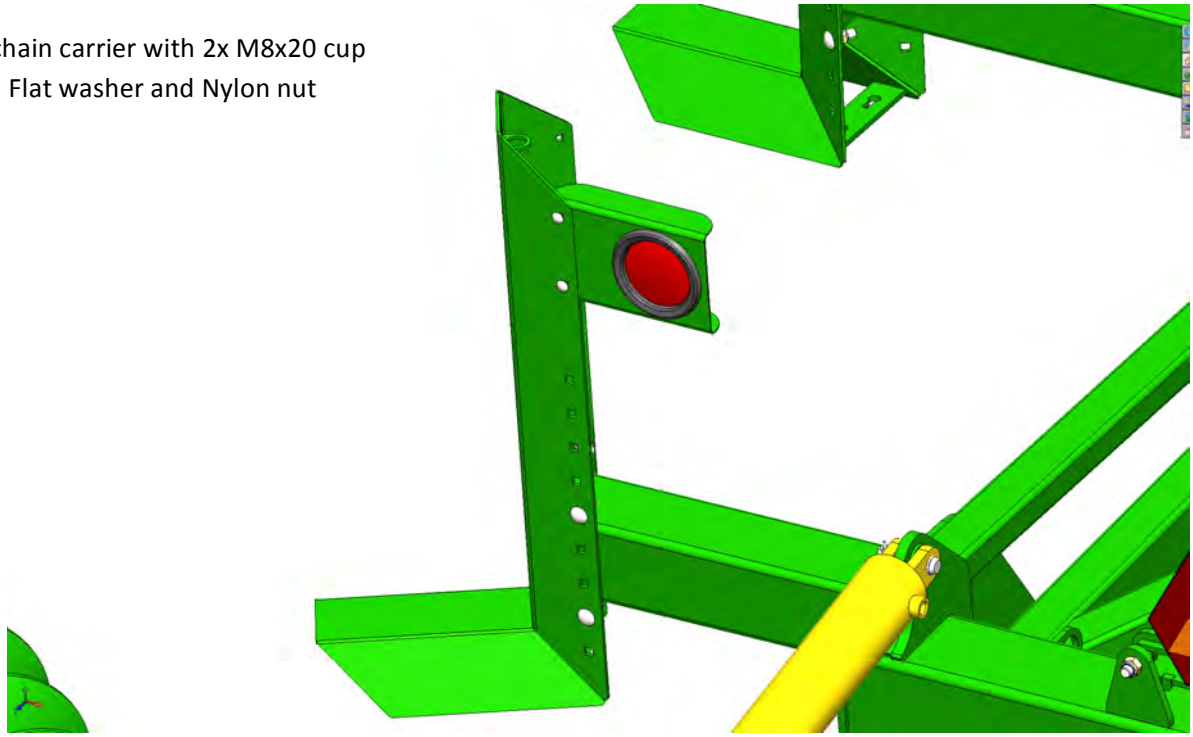
New hose mount post with extra storage points

Rear Light Brackets



Please ensure to bend tabs up and feed wire through, so the light cable is secure

Mount to chain carrier with 2x M8x20 cup head bolts, Flat washer and Nylon nut

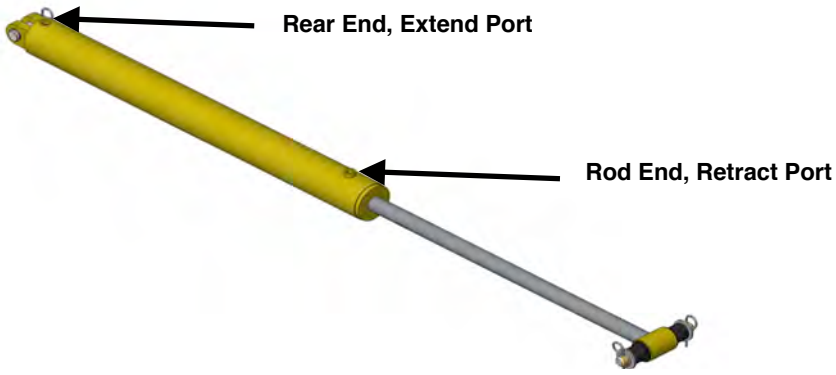


Correct Hose Attachment

Please note that when attaching hoses to sequence valve block to check that hoses are connected to the correct port.

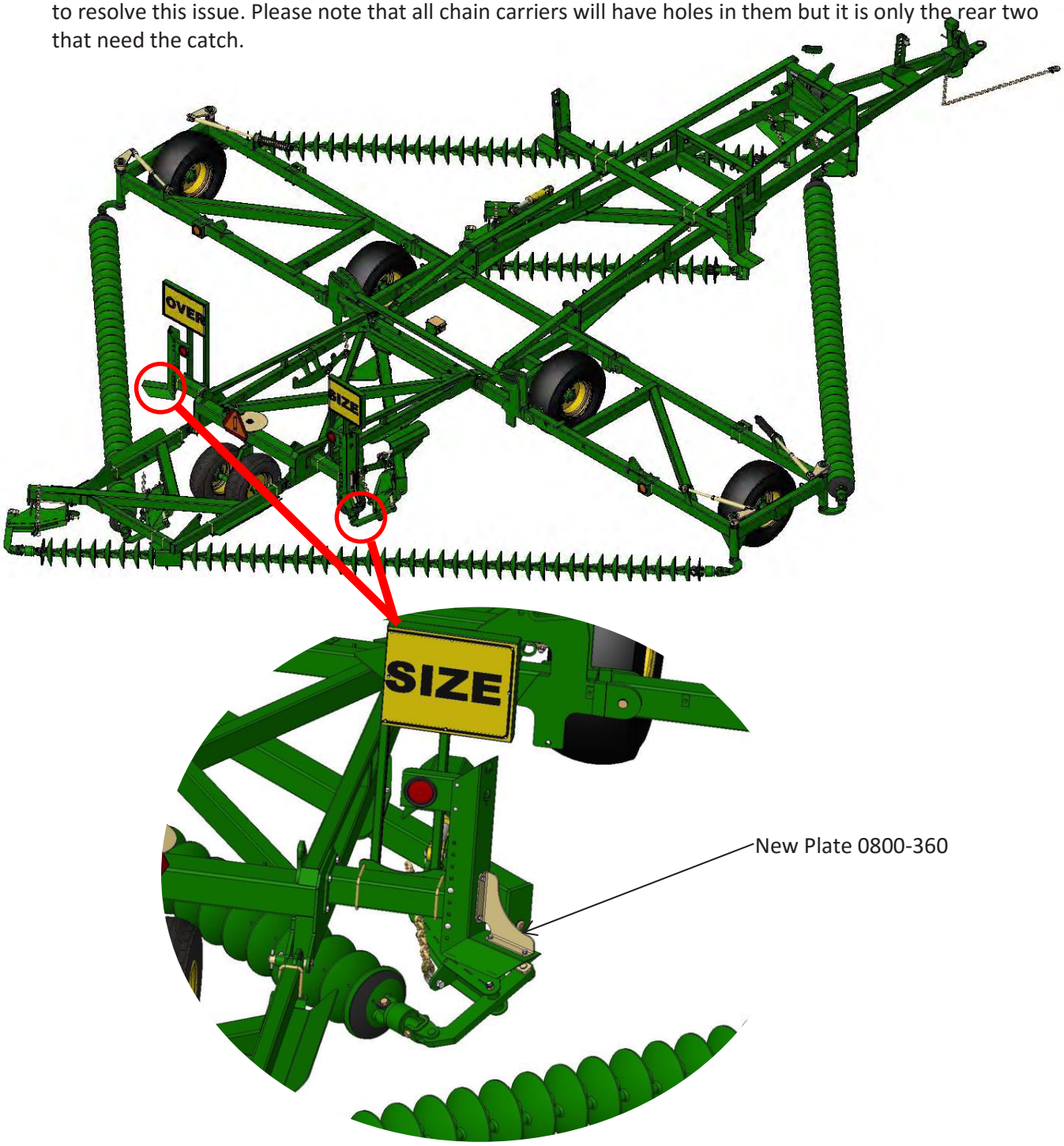
Ports with CE, LE or RE are extend ports (the E denotes Extend) and hoses connected to these must go to the rear end of the cylinder.

Ports with CR, LR or RR are retract ports (the R denotes Retract) and hoses connected to these must go to the rod end of the cylinder.

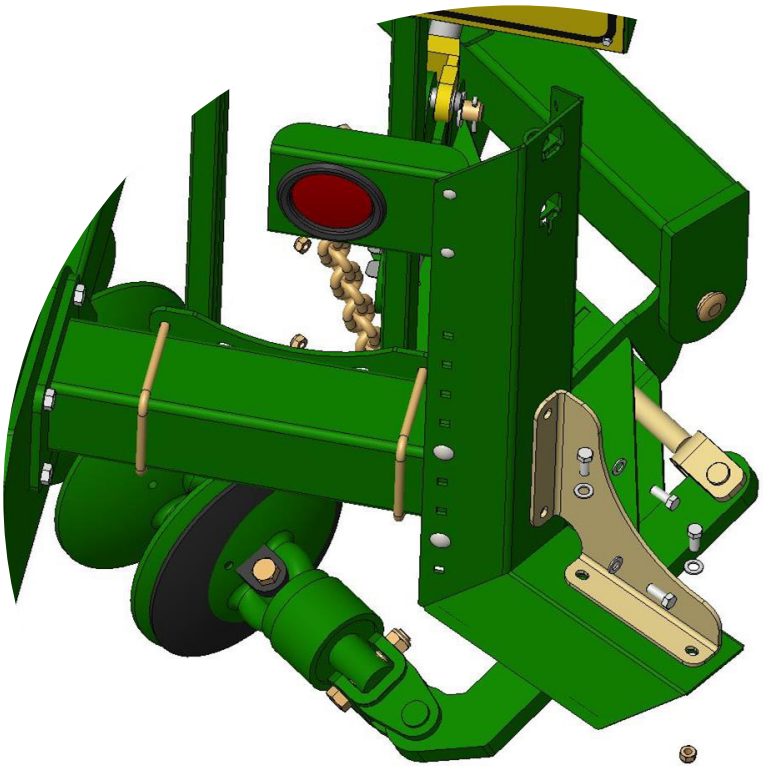


30ft Chain Catch

It has come to our attention that in some circumstances the right hand rear chain on the 30’ machine has come off of the chain carrier end while in transport. To minimize this we have put a chain catch in place to resolve this issue. Please note that all chain carriers will have holes in them but it is only the rear two that need the catch.



30ft Chain Catch



New kit will include,

2x0800-360 plate

8xM12x8.8x30mm ZP Bolts (0211-1230)

8xM12 Flat washers (0231-F12)

8xM12 Nyloc Nuts (0221-NYL12)

Pre-delivery check list	**Checked**
Check tyre pressure (As per manual)	
Check wheel nuts are tight	
Hydraulic rams & hoses are sound	
Grease caster wheel kingpin bearing	
All bolts and nuts are tightened to the correct torque values	
All safety decals are on the machine in the correct locations as per the operator's manual	
Check the chain tension as per the operator's manual	
Assembly and operating manuals are in the manual canister	
Brake disc tension spring is tensioned for road transport (50-63mm)	
Roll pins are installed in the CL Discs (CL2 & CL1)	
Chains are resting correctly in their transport supports (chain carries)	
Machine is registered	

Notes