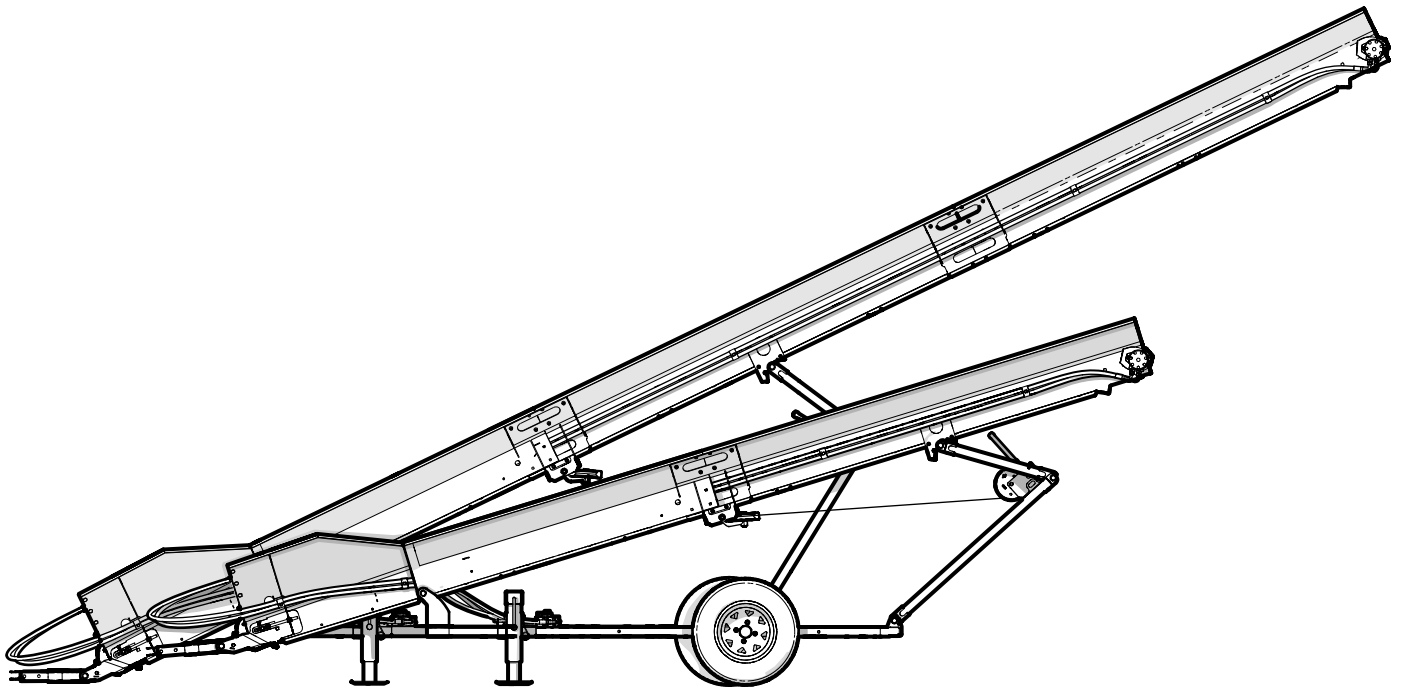


# PARTS MANUAL

---

Serial Number CT162, CT244 & up

## CT16 / CT24 Trailer Firewood Conveyor



## Foreword

This Wallenstein parts manual is prepared to assist customers in ordering quality OEM replacement parts.

Regular maintenance combined with replacing old, worn or broken parts with the correct OEM parts is essential in prolonging the life of your Wallenstein product. Refer to this manual to identify replacement parts.

To order parts, contact your Wallenstein dealer or distributor. Have the product model and serial number handy.

If your dealer is no longer available, please go to our website: <http://wallensteinequipment.com> and click on the [Dealer Locator](#) to find the nearest dealer.

All information contained in this parts manual is current as per the revision date at the bottom of the page. Wallenstein reserves the right to change product specifications at any time without notice.

If your product specifications differ from those contained in this manual, contact Wallenstein for current information.

Reproduction of information in this parts manual is prohibited without prior written permission from Wallenstein Equipment Inc.

Wallenstein Equipment Inc. • © 2022

### **WARNING!**

**Refer to the operators manual for safe operation and maintenance.**

**Maintenance should be performed by trained personnel only.**

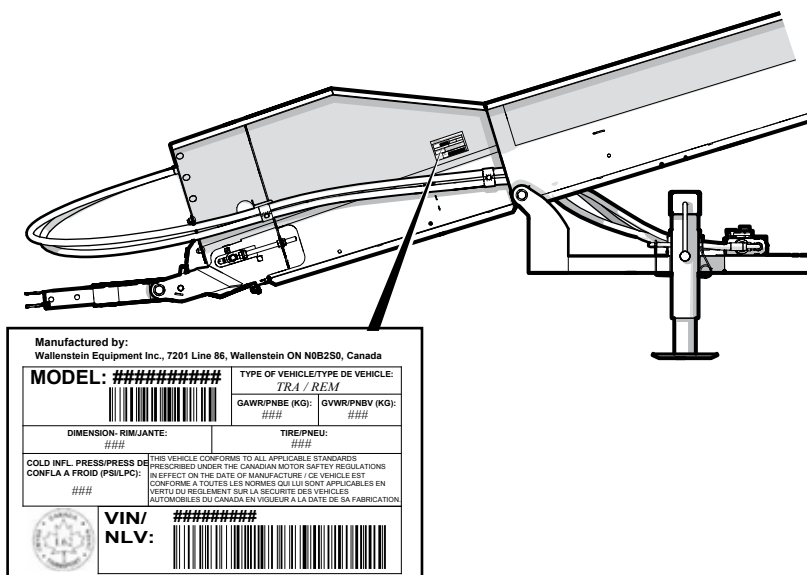
### Serial Number Location

Always provide the model and serial number of your Wallenstein product when ordering parts or requesting service or other information. This information is found on the product information plate as shown below.

**Record your product information here for future reference.**

**Model** \_\_\_\_\_

**Serial Number** \_\_\_\_\_

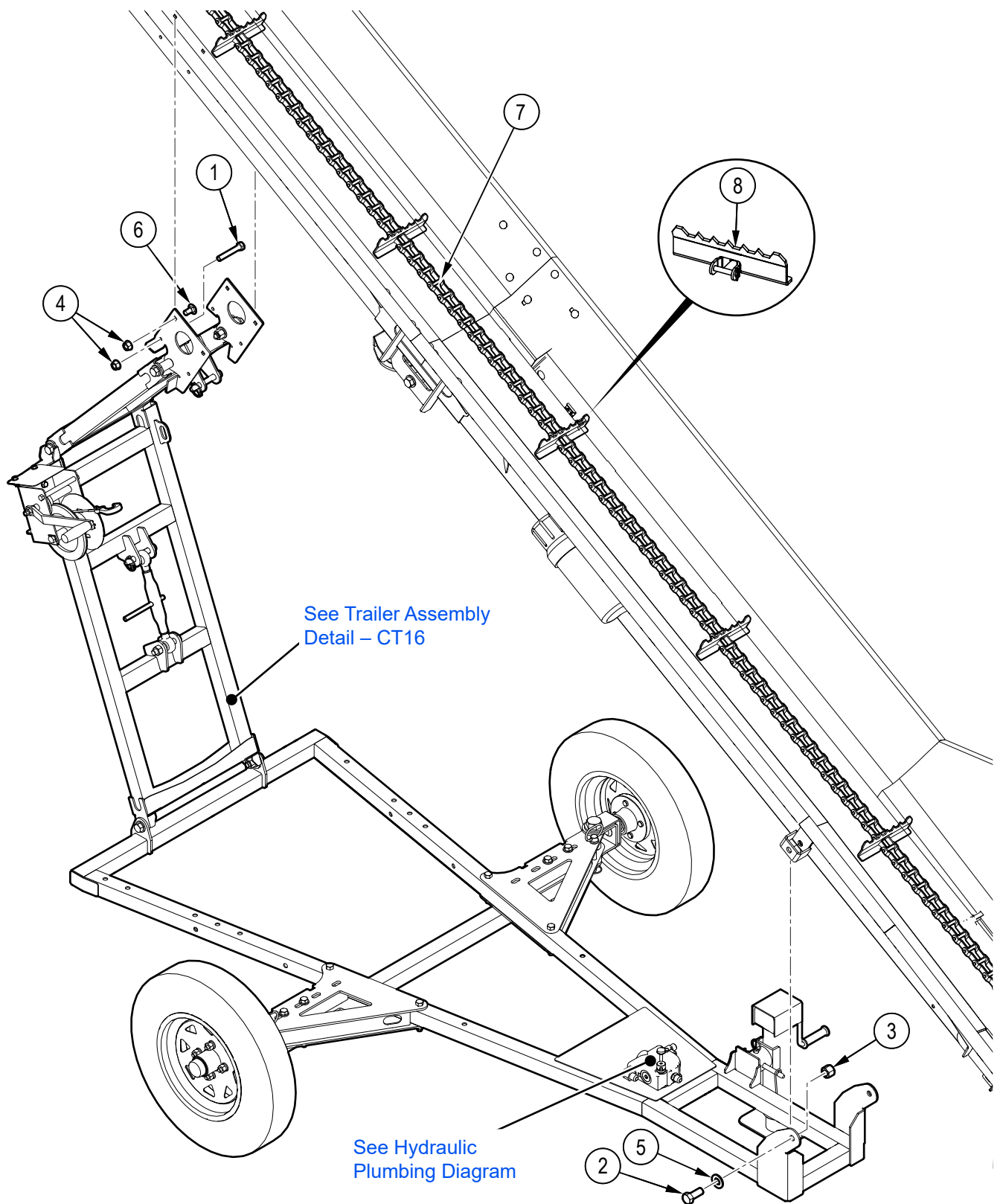


**Model and Serial Number Location**

## Contents

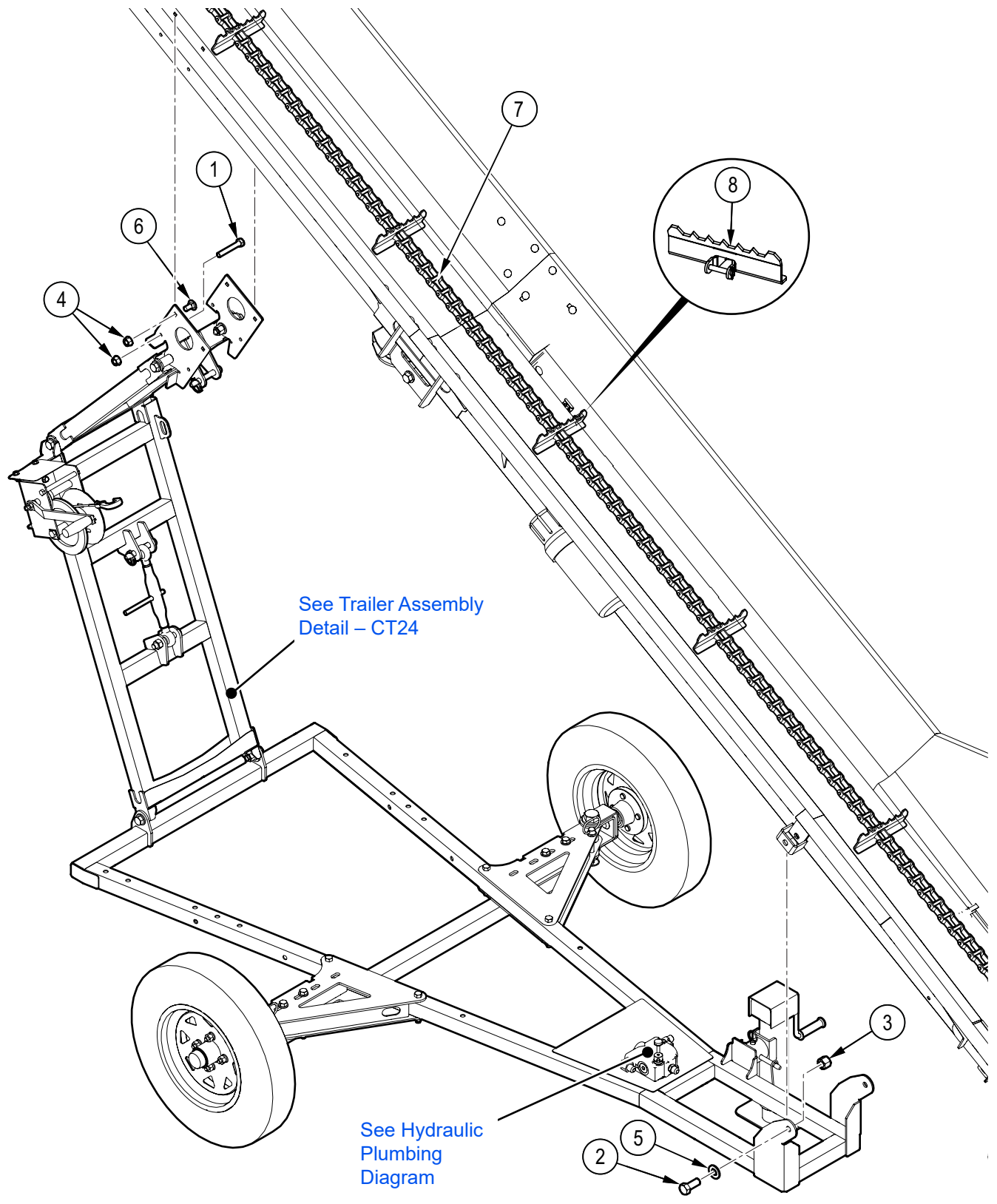
<b>Main Parts – CT16 .....</b>	<b>4</b>
<b>Main Parts – CT24 .....</b>	<b>5</b>
<b>Trailer Assembly Detail – CT16 .....</b>	<b>6</b>
<b>Trailer Assembly Detail – CT24 .....</b>	<b>7</b>
<b>Folding Frame .....</b>	<b>8</b>
<b>Upper and Middle Trough Detail – CT24 .....</b>	<b>9</b>
<b>Lower Trough – Right Side .....</b>	<b>10</b>
<b>Lower Trough – Left Side .....</b>	<b>11</b>
<b>Hydraulic Plumbing Diagram – CT16 .....</b>	<b>12</b>
<b>Hydraulic Plumbing Diagram – CT24 .....</b>	<b>13</b>
<b>Infeed Drive .....</b>	<b>14</b>
<b>Idler Sprocket Detail .....</b>	<b>15</b>
<b>Hub Detail .....</b>	<b>16</b>
<b>Hydraulic Power Pack Accessory .....</b>	<b>17</b>
<b>Hydraulic Conveyor Control Accessory .....</b>	<b>21</b>
<b>Decal Layout.....</b>	<b>22</b>
<b>Common Bolt Torque Values .....</b>	<b>23</b>
<b>Wheel Lug Torque .....</b>	<b>24</b>

**Main Parts – CT16**



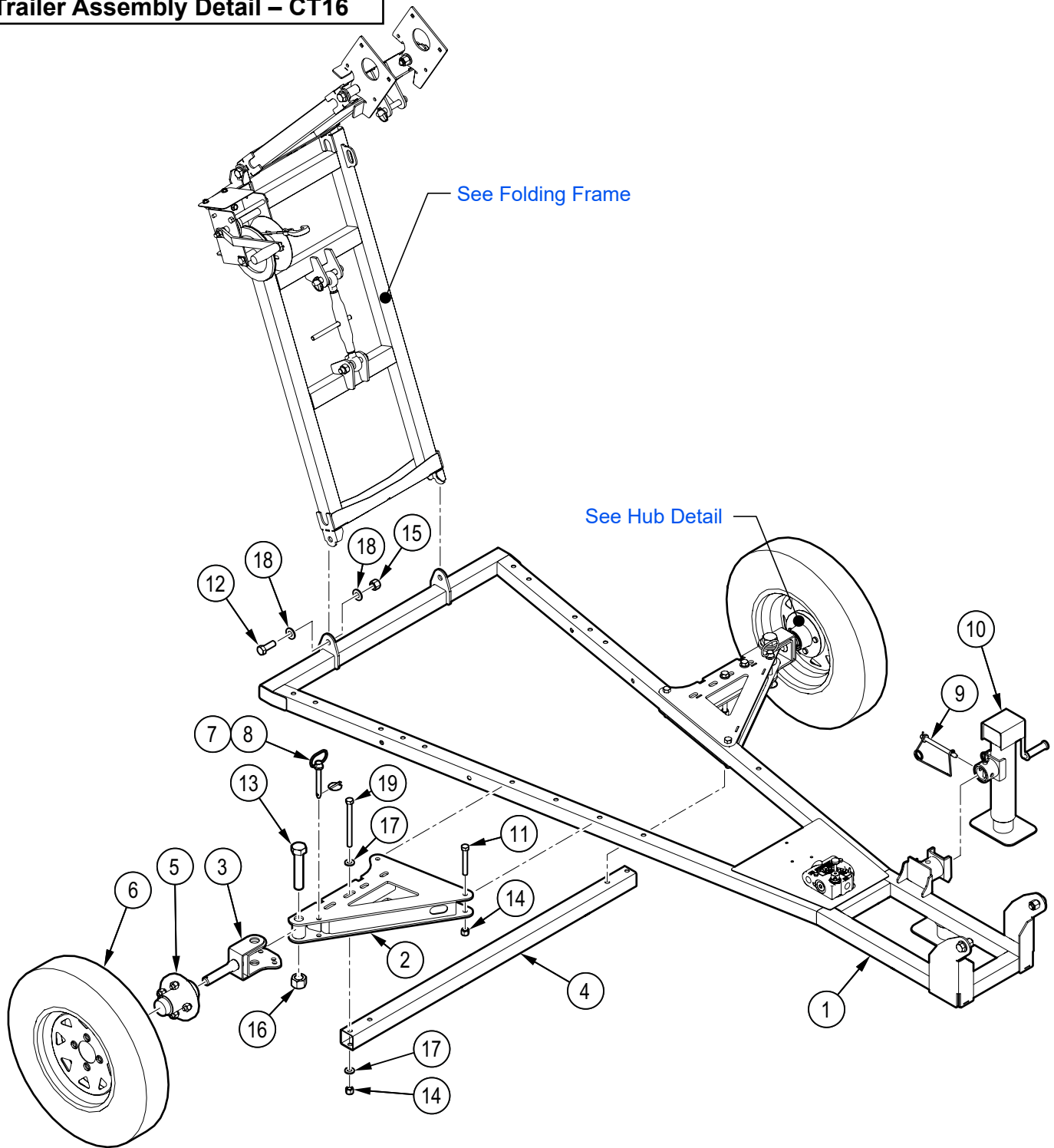
Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1	Z71322	Hex Bolt, 3/8NC x 2-1/4"	4	5	Z73161	SAE Washer, 5/8"	2
2	Z71615	Hex Bolt, 5/8NC x 1-1/2"	2	6	Z76233	Carriage Bolt, 3/8NC x 3/4"	4
3	Z72261	Hex Lock Nut, 5/8NC	2	7	2280W257	16ft Conveyor Chain	1
4	Z72531	Serrated Flange Locknut, 3/8NC	8	8	2280A101	Chain Link w/ Cog	1

**Main Parts – CT24**



Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1	Z71322	Hex Bolt, 3/8NC x 2-1/4"	4	5	Z73161	SAE Washer, 5/8"	2
2	Z71615	Hex Bolt, 5/8NC x 1-1/2"	2	6	Z76233	Carriage Bolt, 3/8NC x 3/4"	4
3	Z72261	Hex Lock Nut, 5/8NC	2	7	2280W221	24ft Conveyor Chain	1
4	Z72531	Serrated Flange Locknut, 3/8NC	8	8	2280A101	Chain Link w/ Cog	1

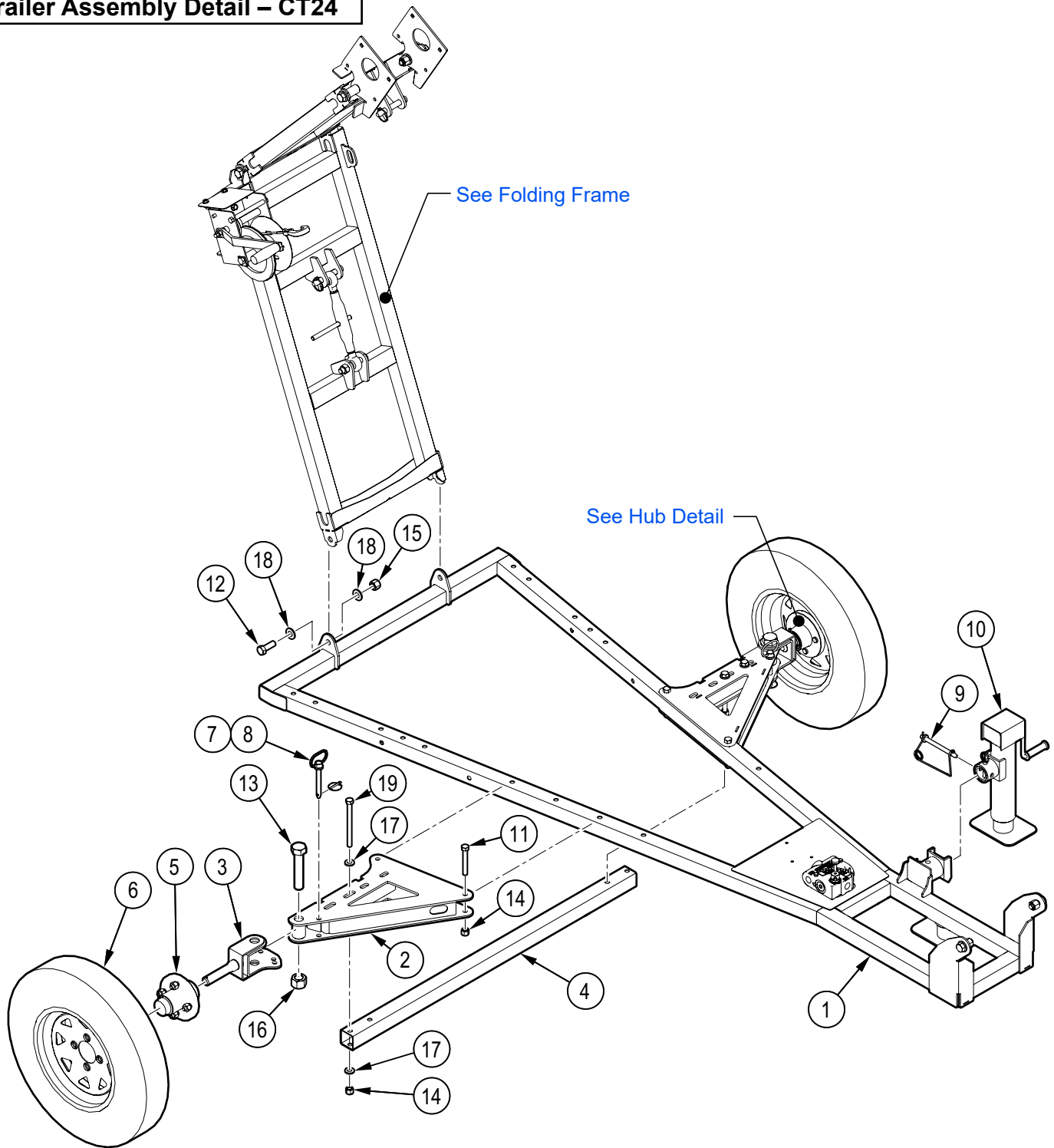
**Trailer Assembly Detail – CT16**



Item No.	Part No.	Description	Qty
1	2280W201	Wheel Base Frame	1
2	2280W252	Axle	2
3	2280W202	Wheel Rotator	2
4	2280W254	Spanner Bar	1
5	Z91202	Idler Hub Assy, 1000lbs x 4on4" x 1"	2
6	Z91322	5.30-12 LRC USA Trail 4on4" (E-Marked)	2
7	Z11222	Hitch Pin, 1/2" x 3-1/2"	2
8	Z12110	Lynch Pin, 3/16"	2
9	Z12441	Snap Lock Pin, 1/2" x 4-1/2"	1

Item No.	Part No.	Description	Qty
10	Z91512	Trailer Jack, Side Wind x 2000lbs	1
11	Z71535	Hex Bolt, 1/2NC x 3-1/2"	4
12	Z71617	Hex Bolt, 5/8NC x 1-3/4"	2
13	Z71912	Hex Bolt, 1NC x 5"	2
14	Z72251	Hex Lock Nut, 1/2NC	8
15	Z72261	Hex Lock Nut, 5/8NC	2
16	Z72291	Hex Lock Nut, 1NC	2
17	Z73151	SAE Washer, 1/2"	8
18	Z73161	SAE Washer, 5/8"	4
19	Z71560	Hex Bolt, 1/2NC x 6"	4

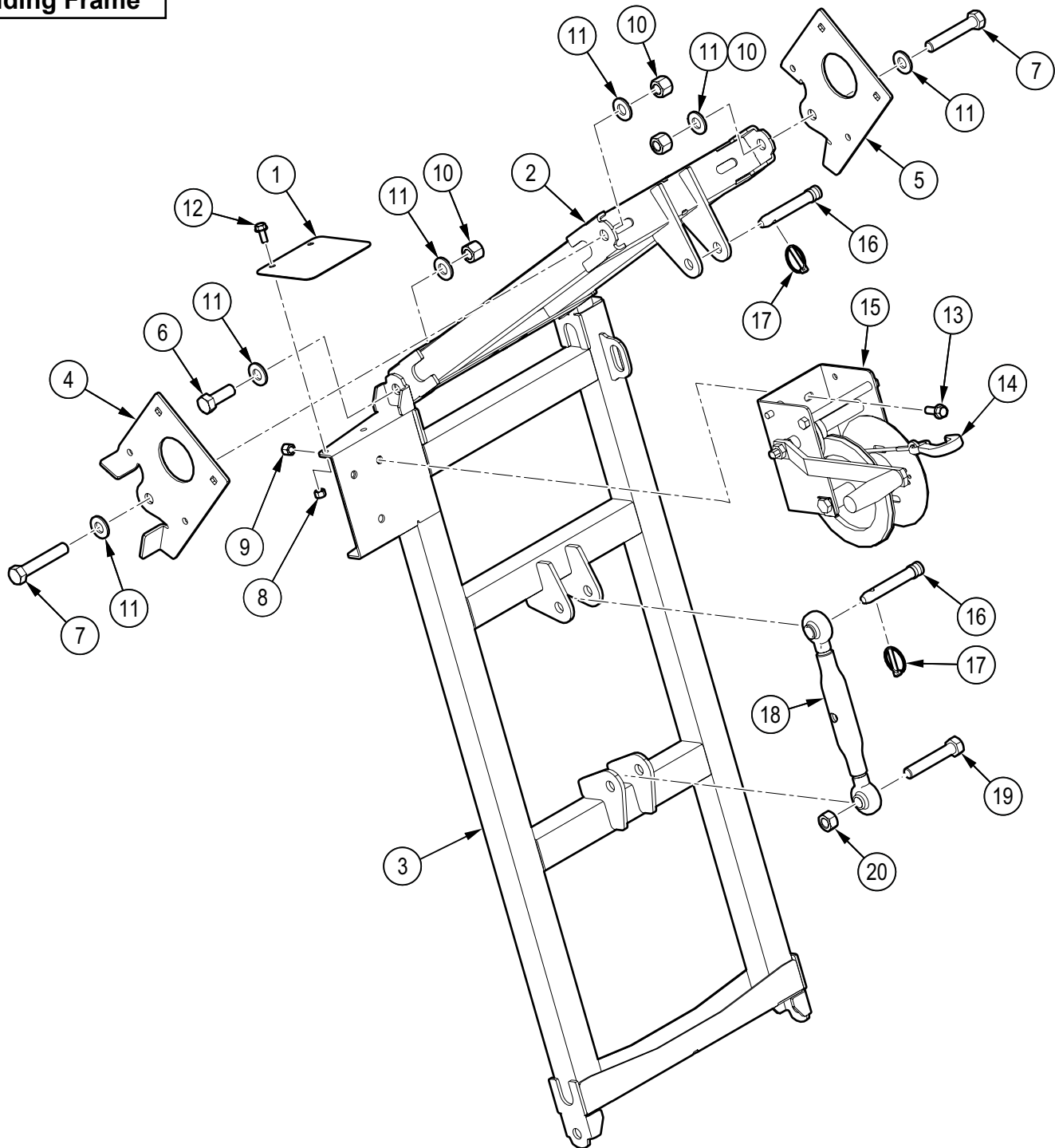
**Trailer Assembly Detail – CT24**



Item No.	Part No.	Description	Qty
1	2280W201	Wheel Base Frame	1
2	2280W252	Axle	2
3	2280W202	Wheel Rotator	2
4	2280W254	Spanner Bar	1
5	Z91202	Idler Hub Assy, 1000lbs x 4on4" x 1"	2
6	Z91322	5.30-12 LRC USA Trail 4on4" (E-Marked)	2
7	Z11222	Hitch Pin, 1/2" x 3-1/2"	2
8	Z12110	Lynch Pin, 3/16"	2
9	Z12441	Snap Lock Pin, 1/2" x 4-1/2"	1

Item No.	Part No.	Description	Qty
10	Z91512	Trailer Jack, Side Wind x 2000lbs	1
11	Z71535	Hex Bolt, 1/2NC x 3-1/2"	4
12	Z71617	Hex Bolt, 5/8NC x 1-3/4"	2
13	Z71912	Hex Bolt, 1NC x 5"	2
14	Z72251	Hex Lock Nut, 1/2NC	8
15	Z72261	Hex Lock Nut, 5/8NC	2
16	Z72291	Hex Lock Nut, 1NC	2
17	Z73151	SAE Washer, 1/2"	8
18	Z73161	SAE Washer, 5/8"	4
19	Z71560	Hex Bolt, 1/2NC x 6"	4

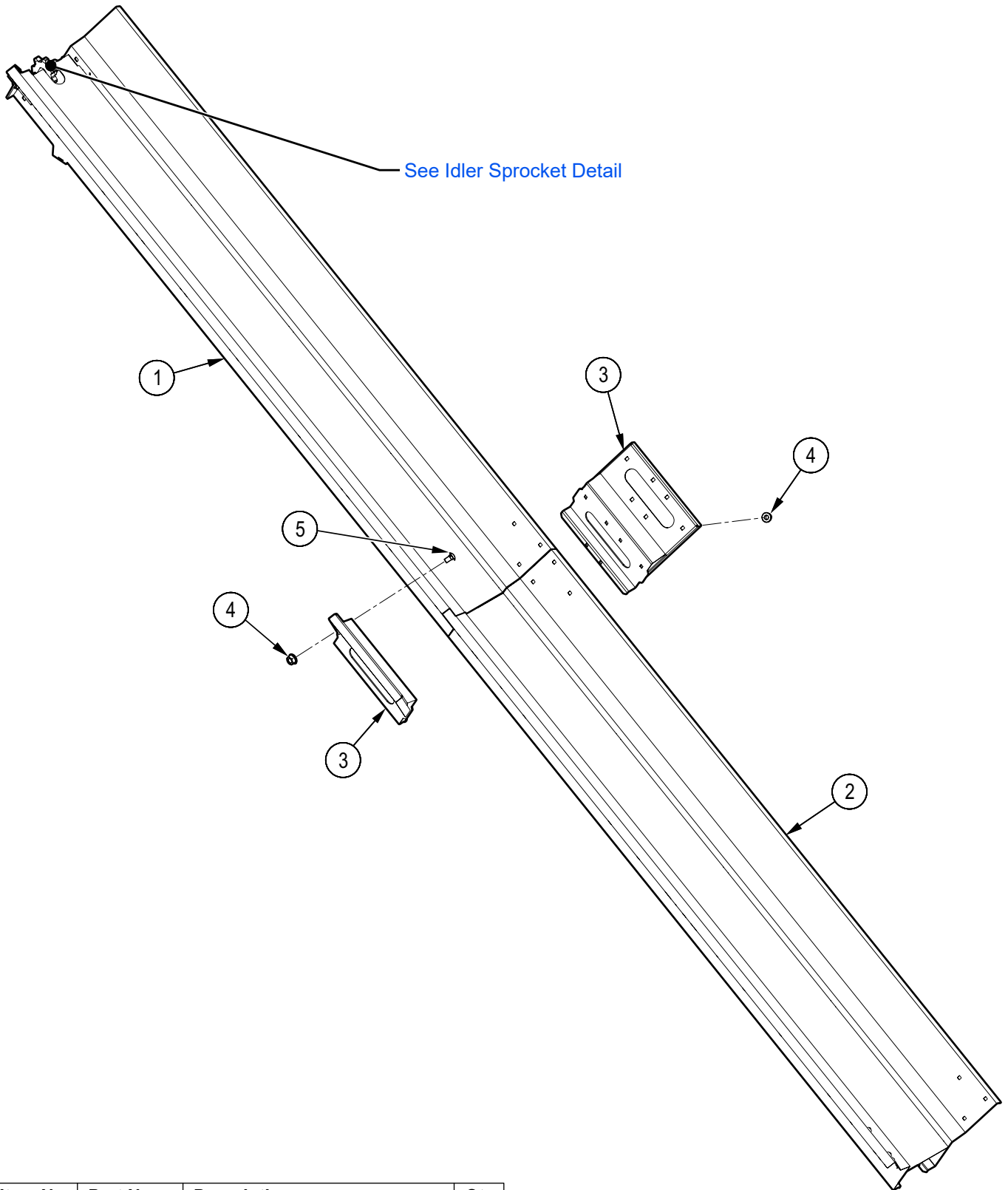
## Folding Frame



Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1	2280L277	Guard, Finger	1	11	Z73161	SAE Washer, 5/8"	8
2	2280W203	Top Folding Frame	1	12	Z76121	Flange Bolt, 5/16NC x 3/4"	2
3	2280W204	Bottom Folding Frame	1	13	Z76134	Flange Bolt, 3/8NC x 1"	3
4	2280W253	Folding Stop	1	14	Z92129	Winch Cable, 3/16" x 25ft with Hook	1
5	2280W253H	Mirror	1	15	Z92906	Hand Winch, 1500lbs With Brake	1
6	Z71617	Hex Bolt, 5/8NC x 1-3/4"	2	16	Z11111	Toplink Pin, 5/8" x 2-3/4"	2
7	Z71635	Hex Bolt, 5/8NC x 3-1/2"	2	17	Z12120	Lynch Pin, 1/4"	2
8	Z72221	Hex Lock Nut, 5/16NC	2	18	Z11501	Cat 0 Toplink	1
9	Z72231	Hex Lock Nut, 3/8NC	3	19	Z71635	Hex Bolt, 5/8NC x 3-1/2"	1
10	Z72261	Hex Lock Nut, 5/8NC	4	20	Z72161	Hex Nut, 5/8NC	1

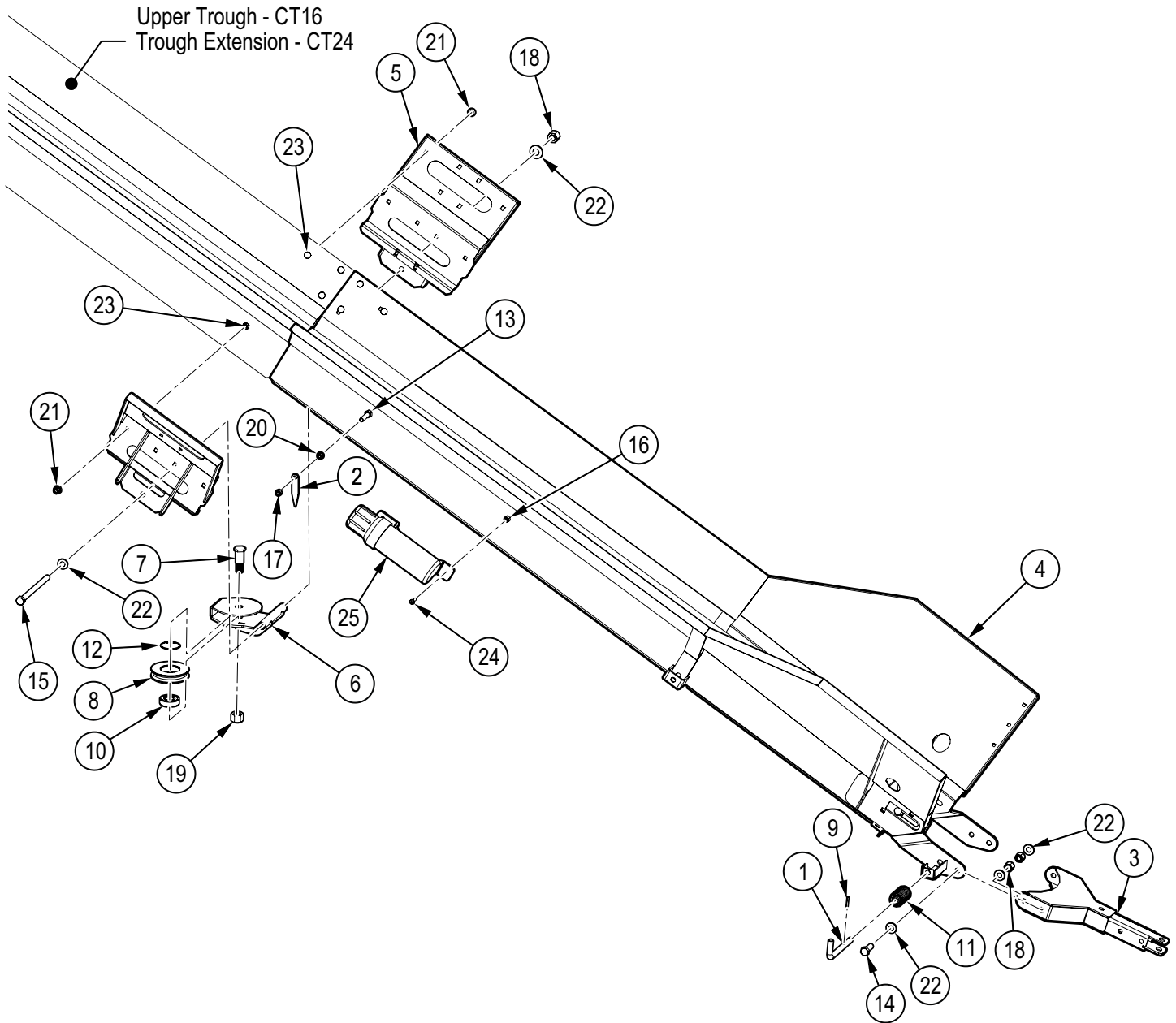


Upper and Middle Trough Detail – CT24



Item No.	Part No.	Description	Qty
1	2280W233	Upper Trough Trailer	1
2	2280W225	Trough Extension	1
3	2280L224	Joiner Lifter Side RH	2
4	Z72531	Serrated Flange Locknut, 3/8NC	24
5	Z76233	Carriage Bolt, 3/8NC x 3/4"	24

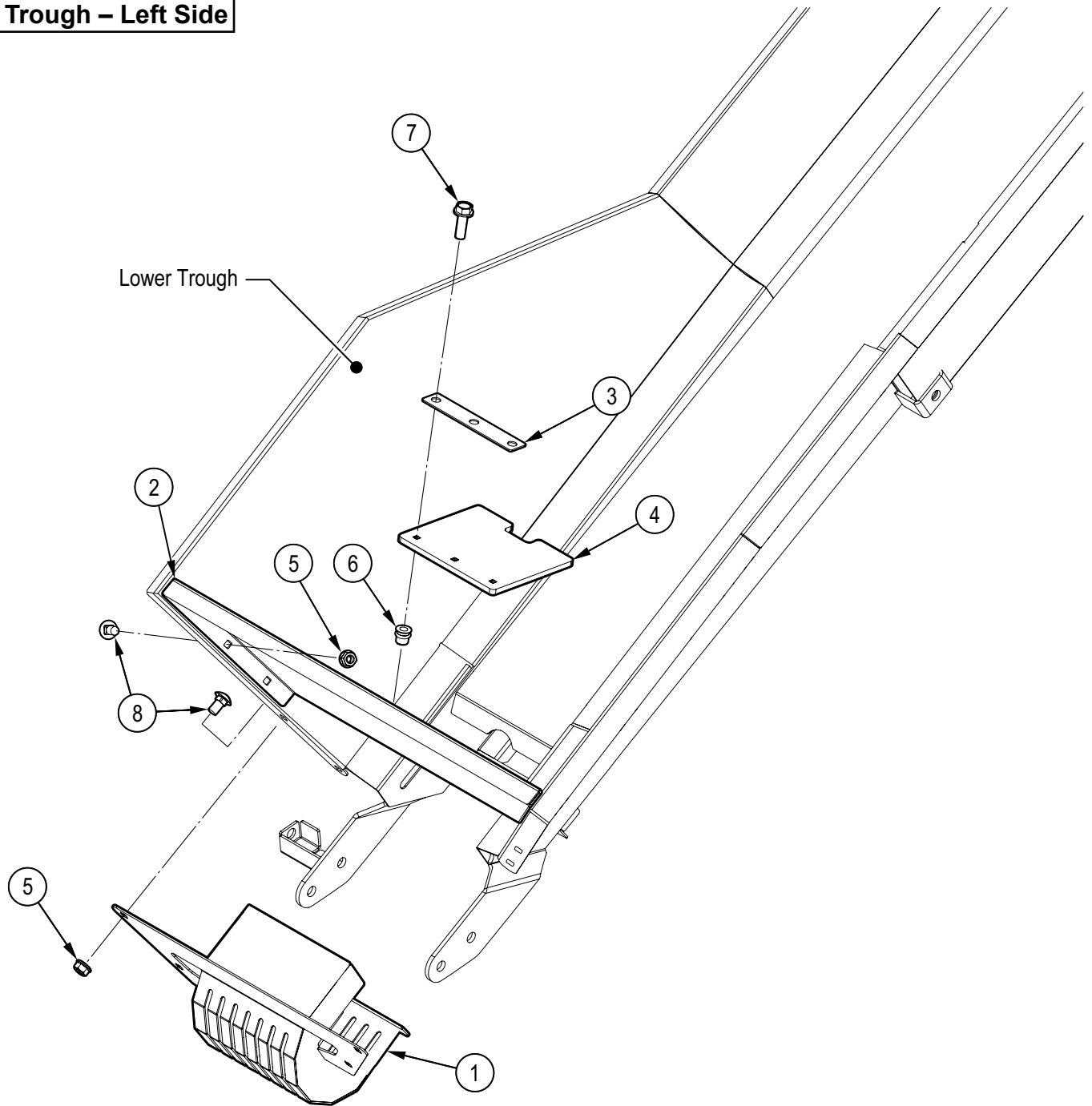
**Lower Trough – Right Side**



Item No.	Part No.	Description	Qty
1	1026M102	L Handled Plunger, Compact	1
2	2280L184	Indicator, Angle	1
3	2280W226	Hitch	1
4	2280W222	Trailer Lower Trough	1
5	2280W250	Joiner, Pulley Base	2
6	2280W251	Frame, Snatchblock	1
7	5011M815	Snatch Block, Pulley Pin	1
8	5011M816	Cable Pulley	1
9	Z14151	Roll Pin, 3/16" x 1-1/2"	1
10	Z21201	Ball Bearing, 6305-2RS	1
11	Z32305	Comp Spring, 0.845" OD x 3-1/2" x 0.085"	1
12	Z46101	Internal Retaining Ring, 2-7/16"	1
13	Z71212	Hex Bolt 5/16NC x 1 1/4"	1

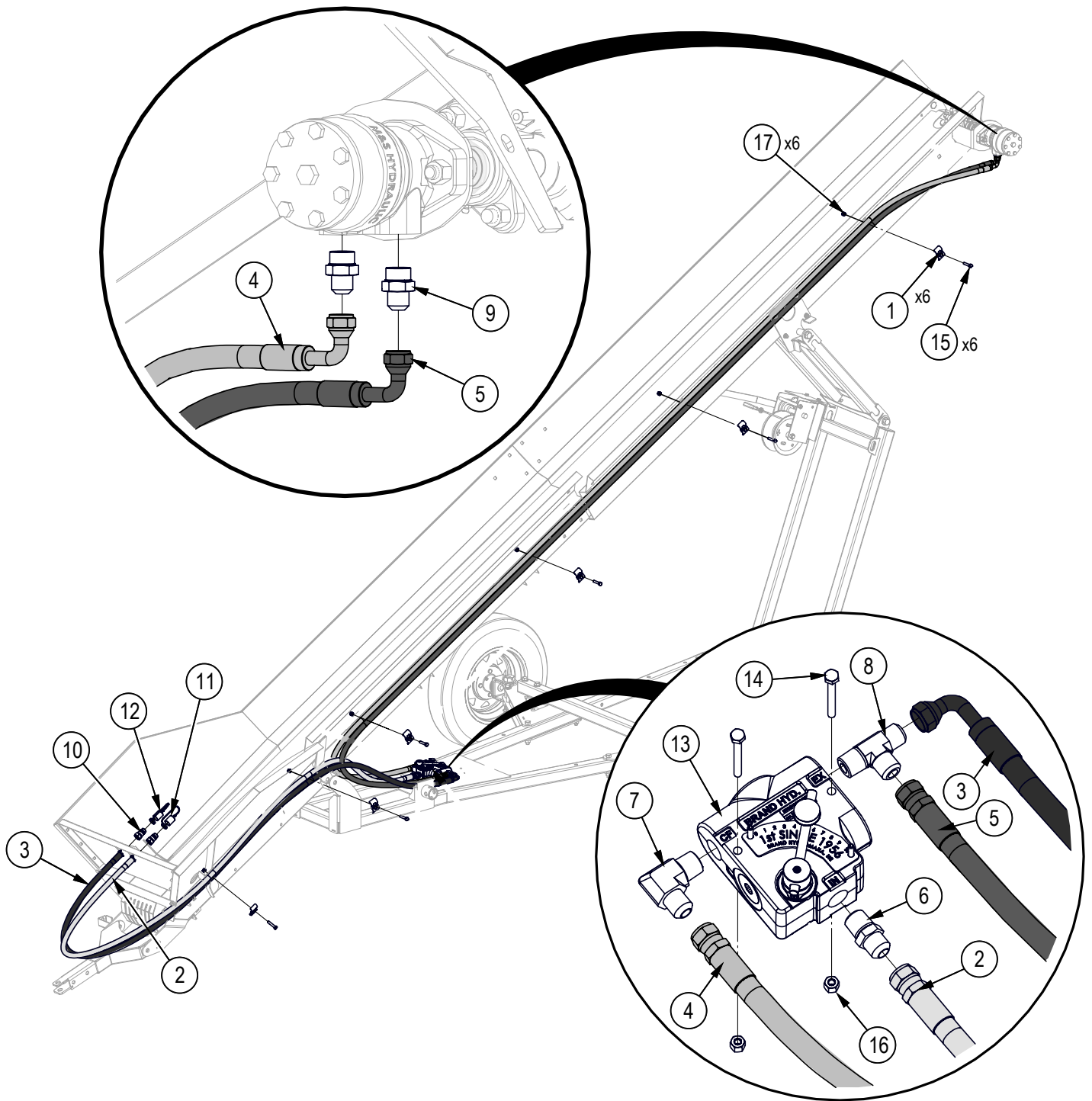
Item No.	Part No.	Description	Qty
14	Z71617	Hex Bolt, 5/8NC x 1-3/4"	2
15	Z71661	Hex Bolt, 5/8NC x 8-1/2"	1
16	Z72211	Hex Lock Nut, 1/4NC	2
17	Z72221	Hex Lock Nut, 5/16NC	1
18	Z72261	Hex Lock Nut, 5/8NC	3
19	Z72281	Hex Lock Nut, 7/8NC	1
20	Z72521	Serrated Flange Locknut, 5/16NC	1
21	Z72531	Serrated Flange Locknut, 3/8NC	24
22	Z73161	SAE Washer, 5/8"	6
23	Z76233	Carriage Bolt, 3/8NC x 3/4"	24
24	Z78301	Machine Screw, 1/4NC x 3/4"	2
25	Z96503	Manual Tube, 3-1/2" Short	1

## Lower Trough – Left Side



Item No.	Part No.	Description	Qty
1	2280W117	Bottom Sprocket Enclosure	1
2	2280L221	Backer Plate	1
3	2280L158	Rubber Mount, Bottom Enclosure	1
4	2280S103	Trough Flap, Rubber	1
5	Z72531	Serrated Flange Locknut, 3/8NC	12
6	Z72956	Rivet Nut, 5/16NC x 150	3
7	Z76125	Flange Bolt, 5/16NC x 1"	3
8	Z76233	Carriage Bolt, 3/8NC x 3/4"	12

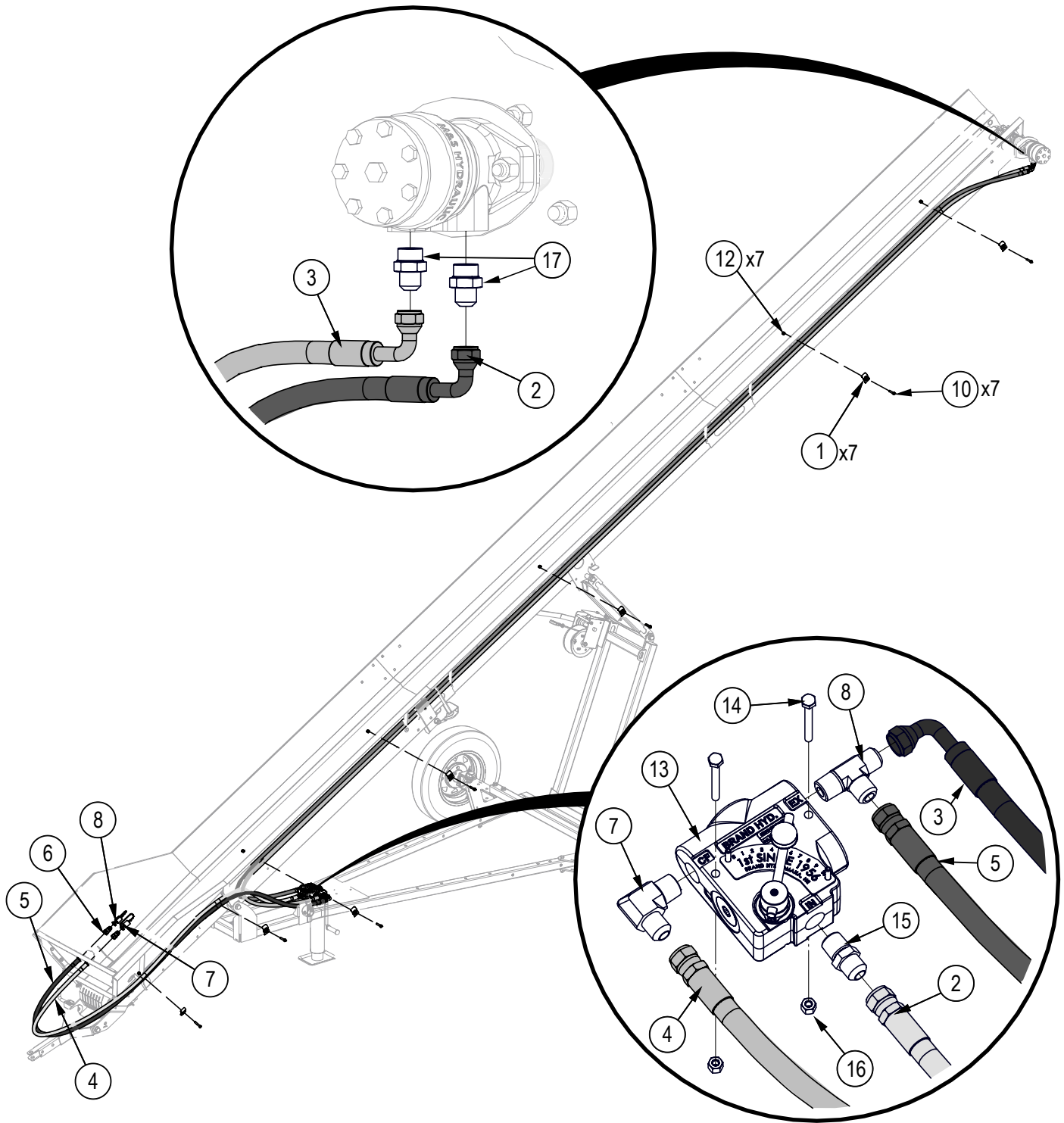
Hydraulic Plumbing Diagram – CT16



Item No.	Part No.	Description	Qty
1	2054L412	Clamp, Two Hose x 1/2"	6
2	2280F254	1/2" Hose, FJIC08 x MP08 x 166"	1
3	2280F255	1/2" Hose, 90FJIC08 x MP08 x 166"	1
4	2280F260	1/2" Hose, FJIC08 x 90FJIC08 x 184"	1
5	2280F261	1/2" Hose, 90FJIC08 x FJIC08 x 184"	1
6	Z51442	Straight, MJIC x MP 0808	1
7	Z51451	Elbow 90, MJIC x MP 0808	1
8	Z51487	Tee, MJIC x MP x MJIC 080808	1
9	Z51647	Straight, MJIC x MORB 0810	2

Item No.	Part No.	Description	Qty
10	Z51926	Quick Coupler, FP08 x M ISO 7241-1	2
11	Z52831	Nipple Cap, ISO 7241-1 x Red	1
12	Z52832	Nipple Cap, ISO 7241-1 x Black	1
13	Z56305	Flow Control, 3 Port x 0-8 GPM	1
14	Z71125	Hex Bolt, 1/4NC x 2-1/2"	2
15	Z71215	Hex Bolt, 5/16NC x 1-1/2"	6
16	Z72211	Hex Lock Nut, 1/4NC	2
17	Z72221	Hex Lock Nut, 5/16NC	6

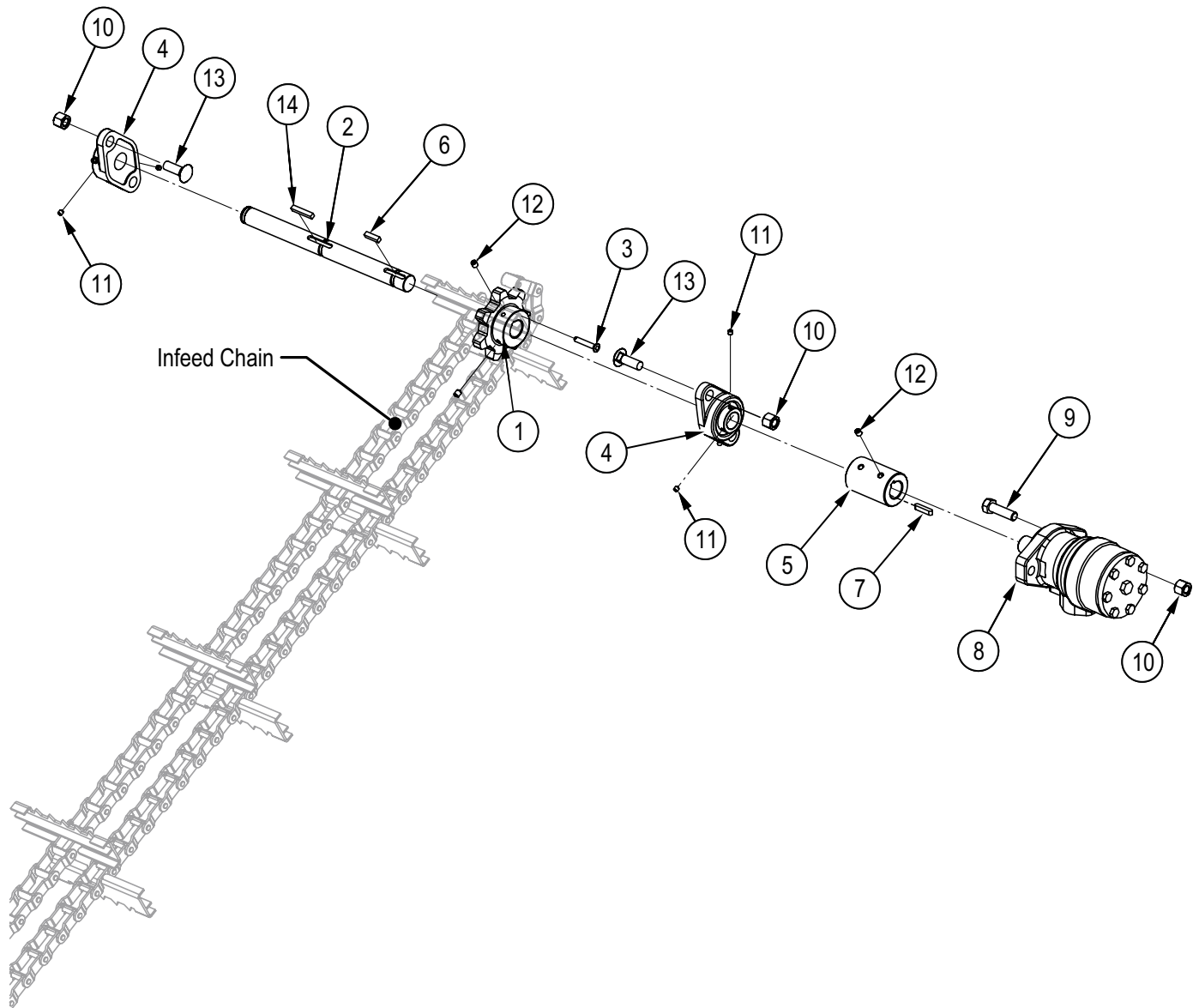
Hydraulic Plumbing Diagram – CT24



Item No.	Part No.	Description	Qty
1	2054L412	Clamp, Two Hose x 1/2"	7
2	2280F252	1/2" Hose, FJIC08 x 90FJIC08 x 280"	1
3	2280F253	1/2" Hose, 90FJIC08 x FJIC08 x 280"	1
4	2280F254	1/2" Hose, FJIC08 x MP08 x 166"	1
5	2280F255	1/2" Hose, 90FJIC08 x MP08 x 166"	1
6	Z51926	Quick Coupler, FP08 x M ISO 7241-1	2
7	Z52831	Nipple Cap, ISO 7241-1 x Red	1
8	Z52832	Nipple Cap, ISO 7241-1 x Black	1
9	Z71125	Hex Bolt, 1/4NC x 2-1/2"	2

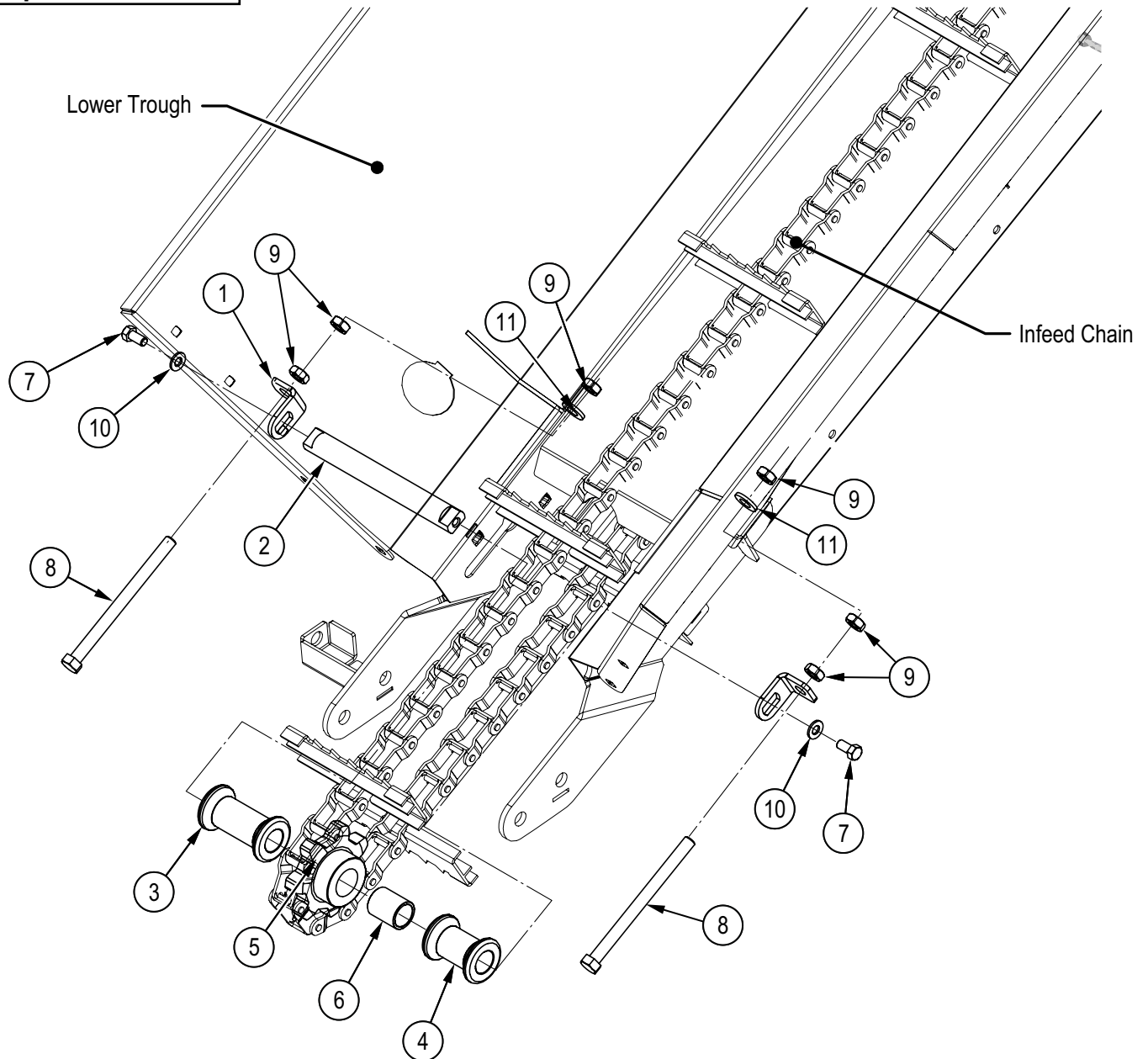
Item No.	Part No.	Description	Qty
10	Z71215	Hex Bolt, 5/16NC x 1-1/2"	7
11	Z72211	Hex Lock Nut, 1/4NC	2
12	Z72221	Hex Lock Nut, 5/16NC	7
13	Z56305	Flow Control, 3 Port x 0-8 GPM	1
14	Z71125	Hex Bolt, 1/4NC x 2-1/2"	2
15	Z51442	Straight, MJIC x MP 0808	1
16	Z72211	Hex Lock Nut, 1/4NC	2
17	Z51647	Straight, MJIC x MORB 0810	2

## Infeed Drive



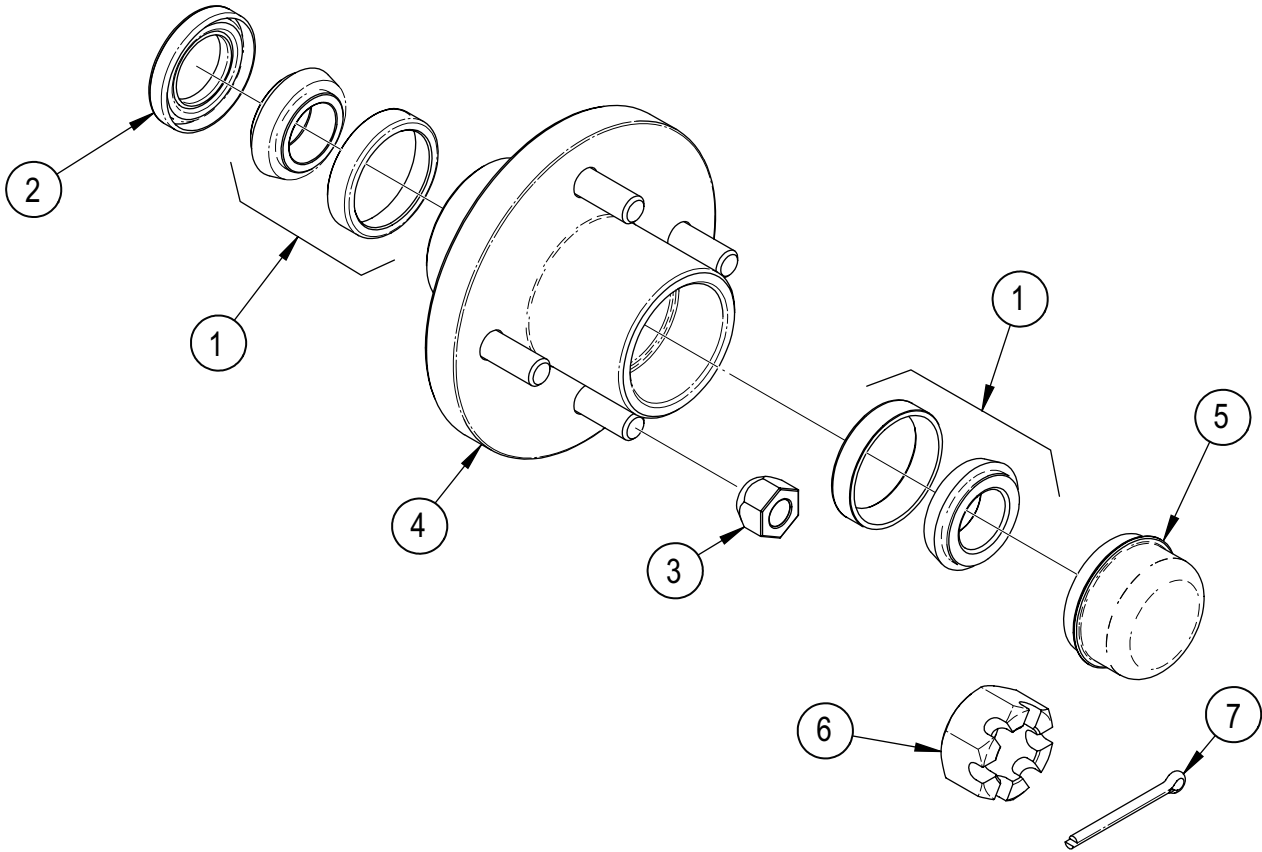
Item No.	Part No.	Description	Qty
1	2280M110	Sprocket, 7 Tooth x 1" Bore	1
2	2280M204	Shaft, Conveyor Drive	1
3	7011M302	Pin, 662 Chain Clevis	1
4	Z25101	2-Bolt Flange Bearing, UCFL205-16	2
5	Z46444	Rigid Coupling, 1" x 1"	1
6	Z46533	Key, 1/4" x 1/4" x 1"	1
7	Z46594	Blind Chipper Key, 1/4" x 1/4" x 1-1/4"	1
8	Z54102	Hydraulic Motor, 200CCR	1
9	Z71517	Hex Bolt, 1/2NC x 1-3/4"	2
10	Z72251	Hex Lock Nut, 1/2NC	6
11	Z74112	Set Screw, 1/4NF x 1/4"	4
12	Z74121	Set Screw, 5/16NC x 3/8"	4
13	Z76251	Carriage Bolt, 1/2NC x 1-1/2"	4
14	Z46532	Key, 1/4" x 1/4" x 1-1/2"	1

### Idler Sprocket Detail



Item No.	Part No.	Description	Qty
1	2280L150	Tensioner, L-Bracket	2
2	2280M103	Shaft, Conveyor Pivot	1
3	2280M104	Spacer, Idler Long	1
4	2280M105	Spacer, Idler Short	1
5	2280M111	Idler Sprocket, 7 Tooth x 1-1/4" Bore	1
6	Z27109	Composite Bearing, 1" ID x 1-1/2" long x 1/8" Wall	1
7	Z71307	Hex Bolt, 3/8NC x 3/4"	2
8	Z71565	Hex Bolt, 1/2NC x 6-1/2"	2
9	Z72351	Jam Nut, 1/2NC	6
10	Z73131	SAE Washer, 3/8"	2
11	Z73151	SAE Washer, 1/2"	2

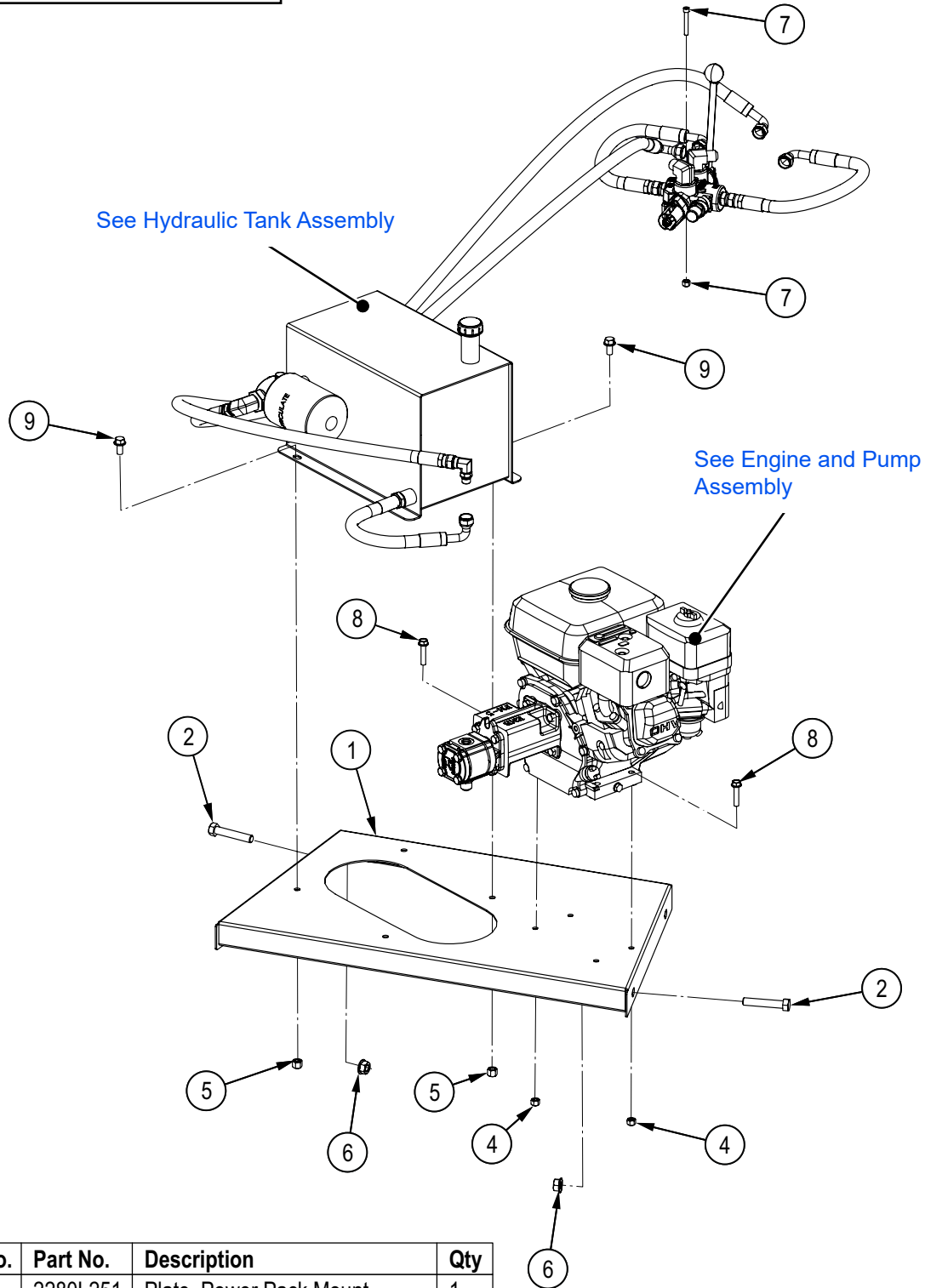
**Hub Detail**



Item No.	Part No.	Description	Qty
1	Z23201	L44643 Cone, L44610 Cup	2
2	Z28301	Double Lip Seal 1-1/4 Shaft	1
3	Z72931	Lug Nut 1/2NF	4
4	Z91201	1000# 4-Bolt Hub	1
5	Z91801	Dust Cap 1.98 Bore	1
6	Z72691	Slotted Hex Nut 1NF	1
7	Z12322	Cotter Pin 3/16 X 2	1



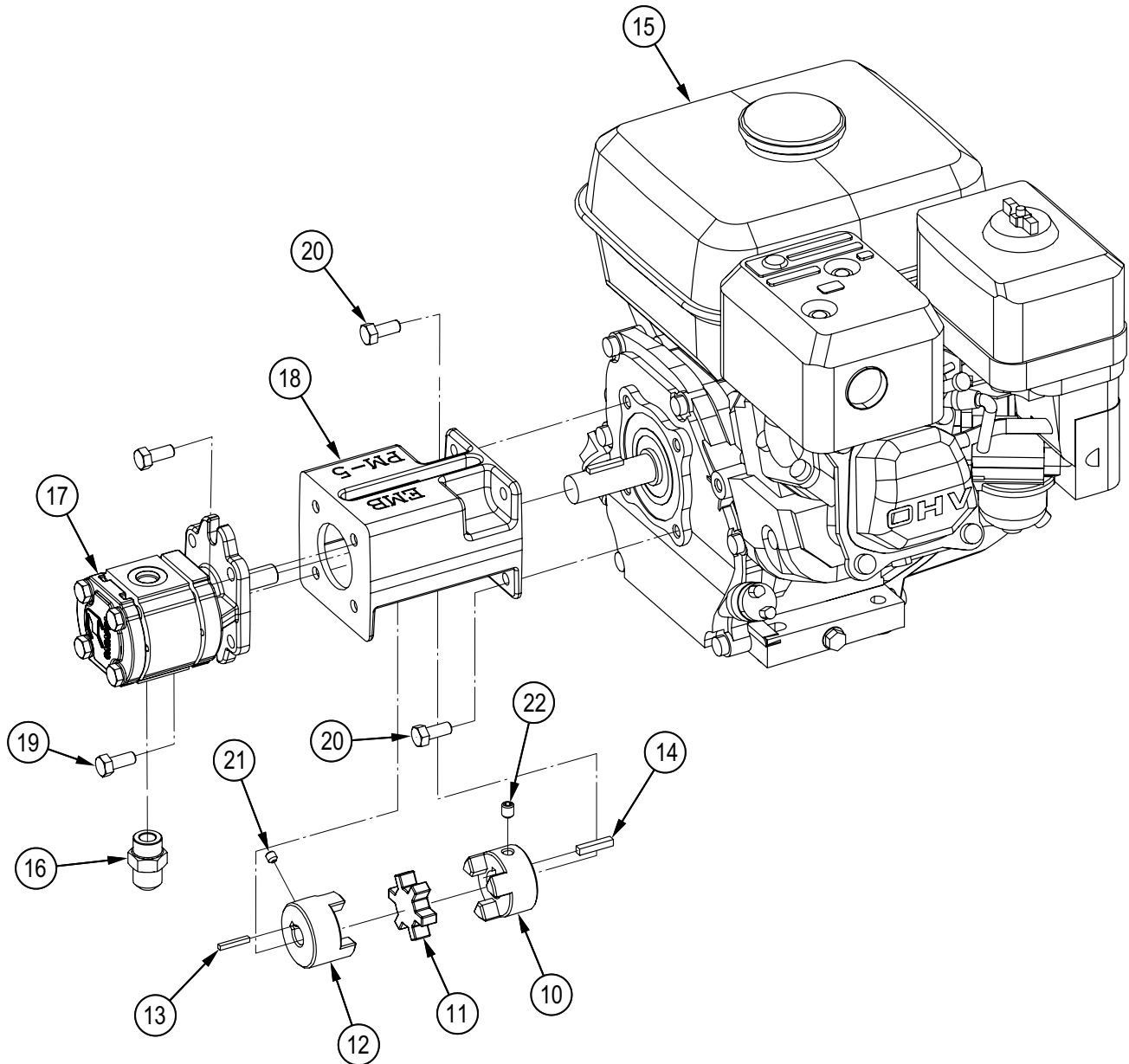
**Hydraulic Power Pack Accessory**



Item No.	Part No.	Description	Qty
1	2280L251	Plate, Power Pack Mount	1
2	Z71527	Hex Bolt, 1/2NC x 2-3/4"	4
3	Z72211	Hex Lock Nut, 1/4NC	3
4	Z72221	Hex Lock Nut, 5/16NC	4
5	Z72231	Hex Lock Nut, 3/8NC	4
6	Z72551	Serrated Flange Locknut, 1/2NC	4
7	Z75114	SHCS, 1/4NC x 1-3/4"	3
8	Z76123	Flange Bolt, 5/16NC x 1-1/2"	4
9	Z76133	Flange Bolt, 3/8NC x 3/4"	4

## Hydraulic Power Pack Accessory (continued)

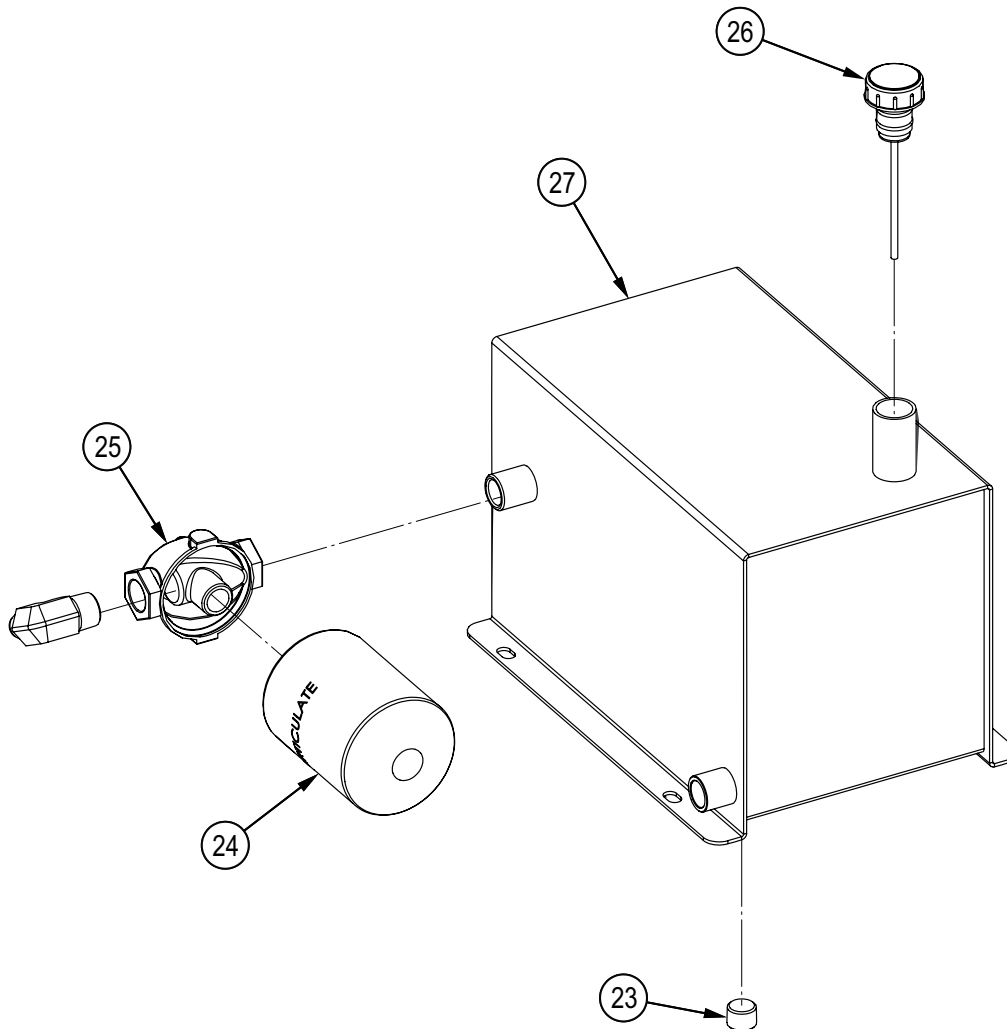
## Engine and Pump Assembly



Item No.	Part No.	Description	Qty
10	Z46406	Shaft Coupler, L075 x 3/4"	1
11	Z46408	Spider, L075	1
12	Z46410	Shaft Coupling, L075 x 1/2"	1
13	Z46511	Key, 1/8" x 1/8" x 7/8"	1
14	Z46522	Key, 3/16" x 3/16" x 1"	1
15	Z47131	Honda GX200UTQH6, Rope	1
16	Z51643	Straight, MJIC x MORB 0808	1
17	Z53108	Gear Pump, Series 10 x 0.26CIR	1
18	Z53801	Pump Mount, PM-5	1
19	Z71207	Hex Bolt, 5/16NC x 3/4"	4
20	Z71273	Hex Bolt, 5/16NF x 3/4"	4
21	Z74111	Set Screw, 1/4NC x 1/4"	1
22	Z74121	Set Screw, 5/16NC x 3/8"	1

## Hydraulic Power Pack Accessory (continued)

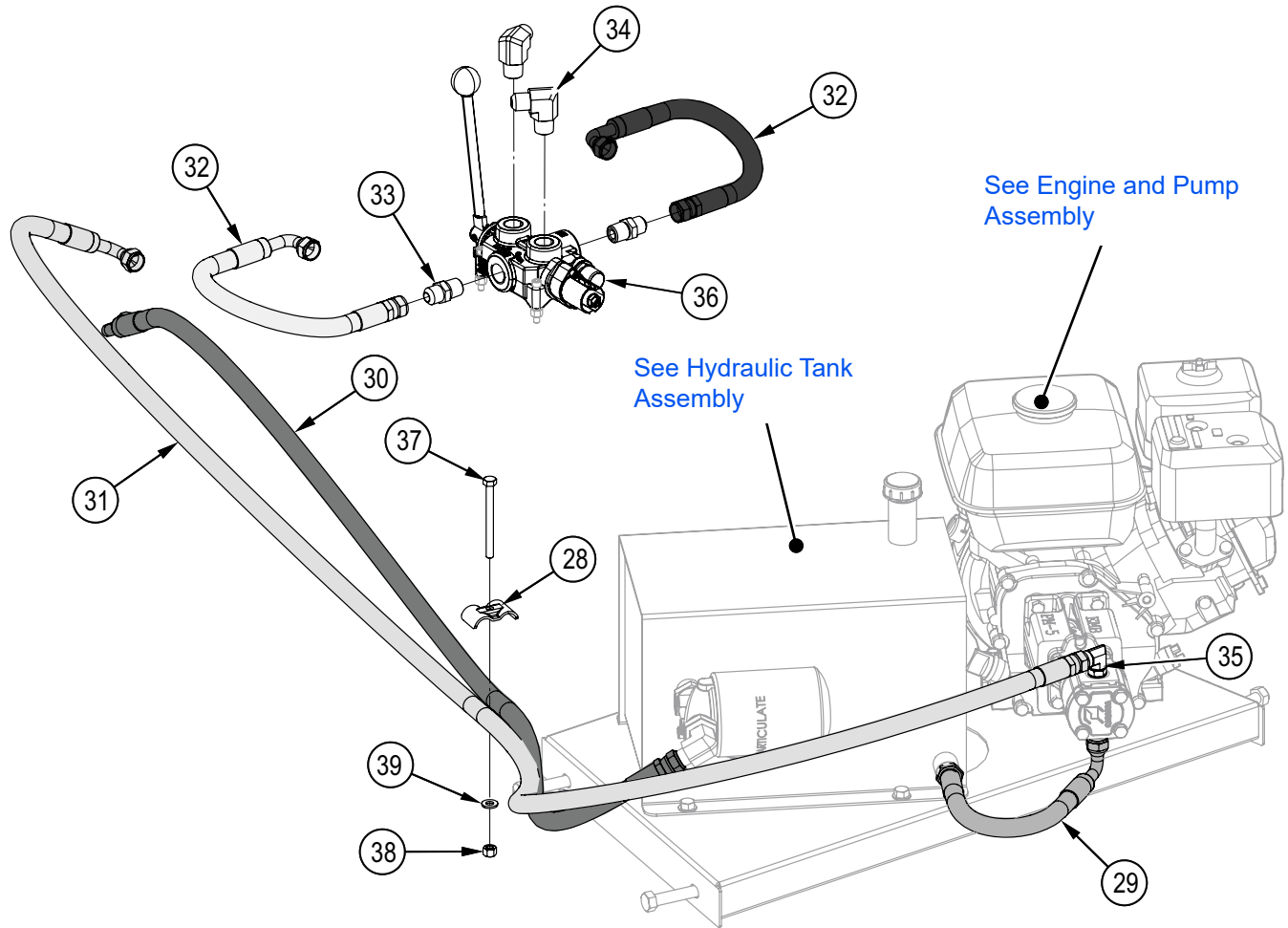
### Hydraulic Tank Assembly



Item No.	Part No.	Description	Qty
23	Z51192	Socket Plug, MP 08	1
24	Z55301	Particulate Filter, FP12	1
25	Z55302	Filter Cap, MP12 x FP12	1
26	Z55402	Vented Plug Dipstick x 5"	1
27	6081W301	Tank	1

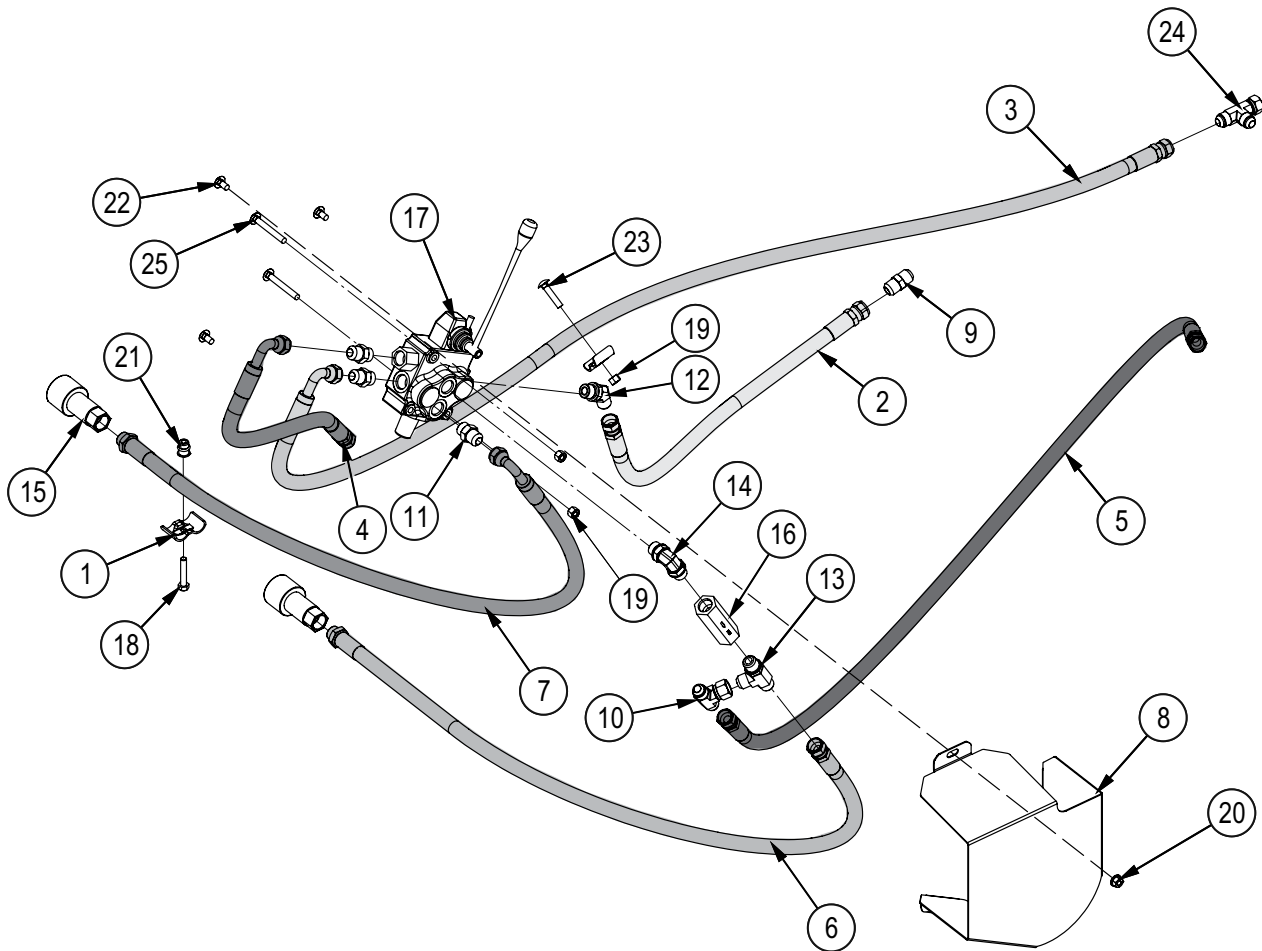
## Hydraulic Power Pack Accessory (continued)

### Hydraulic Connections



Item No.	Part No.	Description	Qty
28	2054L412	Clamp, Two Hose x 1/2"	1
29	2280F251	1/2" Hose, MP08 x 90FJIC08 x 11"	1
30	2280F256	1/2" Hose, FJIC08 x 90FJIC08 x 58"	1
31	2280F257	1/2" Hose, FJIC08 x 90FJIC08 x 92"	1
32	2280F259	1/2" Hose, FJIC08 x 90FJIC08 x 16"	2
33	Z51442	Straight, MJIC x MP 0808	2
34	Z51451	Elbow 90, MJIC x MP 0808	2
35	Z516505	Elbow 90, MJIC x MORB 0806	1
36	Z56209	Single Spool Valve, OC Tandem SCDK x 18GPM	1
37	Z71235	Hex Bolt, 5/16NC x 3-1/2"	1
38	Z72221	Hex Lock Nut, 5/16NC	1
39	Z73122	SAE Washer, 5/16"	1

## Hydraulic Conveyor Control Accessory



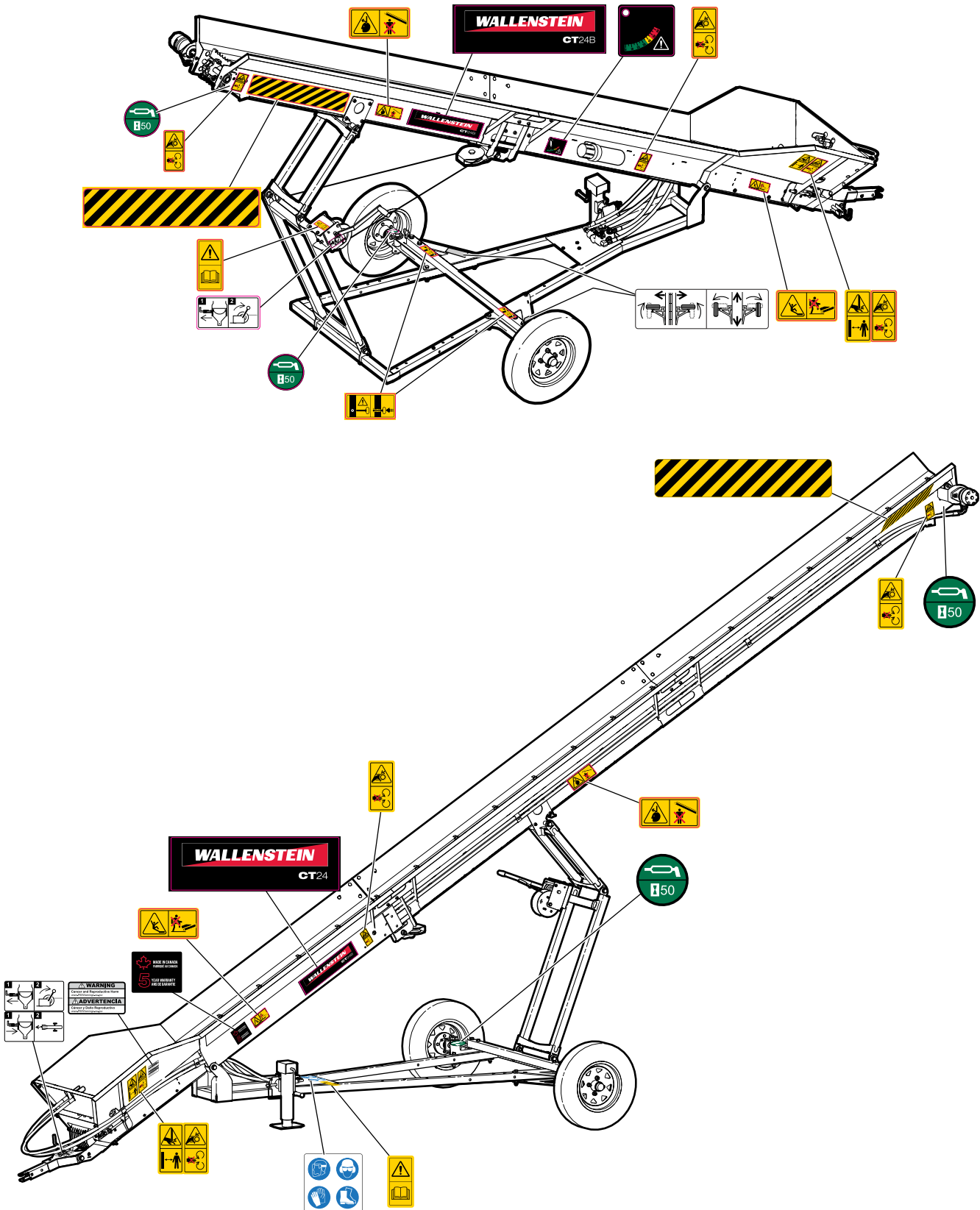
Item No.	Part No.	Description	Qty
1	2054L412	Clamp, Two Hose x 1/2"	2
2	2280F104	1/2" Hose, FJIC08 x FJIC08 x 21"	1
3	2280F105	1/2" Hose, FJIC08 x 90FJIC08 x 64"	1
4	2280F106	1/2" Hose, FJIC08 x 90FJIC08 x 12"	1
5	2280F107	1/2" Hose, FJIC08 x FJIC08 x 42"	1
6	2280F110	1/2" Hose, FJIC08 x MP08 x 48"	1
7	2280F111	1/2" Hose, 90FJIC08 x MP08 x 48"	1
8	2280L186	Guard, Conveyor Hydraulics	1
9	Z51411	Straight, MJIC x MJIC 0808	1
10	Z51593	Tee, MJIC x MJIC x FJICX 080808	1
11	Z51643	Straight, MJIC x MORB 0808	3
12	Z51662	Elbow 45, MJIC x MORB 0808	1
13	Z51673	Tee, MJIC x MORB x MJIC 080808	1

Item No.	Part No.	Description	Qty
14	Z51791	Elbow 90, MORB x MORB 0808	1
15	Z51943	Quick Coupler, FP08 x F ISO 7241-1	2
16	Z56108	Check Valve, ORB08 x 7psi	1
17	Z56225	Single Spool Valve, OC Tandem PB x 12GPM	1
18	Z71217	Hex Bolt, 5/16NC x 1-3/4"	1
19	Z72221	Hex Lock Nut, 5/16NC	3
20	Z72521	Serrated Flange Locknut, 5/16NC	3
21	Z72957	Rivet Nut, 5/16NC x 312	1
22	Z76222	Carriage Bolt, 5/16NC x 5/8"	3
23	Z76224	Carriage Bolt, 5/16NC x 1-1/2"	1
24	Z515901	Tee, MJIC x FJICX x MJIC 080808	1
25	Z762201	Carriage Bolt, 5/16NC x 2-1/2"	2

### Decal Layout

**IMPORTANT!** If parts are replaced that have safety signs on them, new signs must be applied. Safety signs must always be replaced if they become damaged, are removed, or become illegible.

Safety signs are included in the product decal kit available from your authorized dealer. Decals are not available separately.




## Common Bolt Torque Values

### Checking Bolt Torque

The tables shown give correct torque values for various bolts and capscrews. Tighten all bolts to the torque values specified in the table, unless indicated otherwise. Check tightness of bolts periodically.

**IMPORTANT!** If replacing hardware, use fasteners of the same grade.

**IMPORTANT!** Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.

 **NOTE:** Bolt grades are identified by their head markings.

### Imperial Bolt Torque Specifications

Bolt Diameter	Torque Value					
	SAE Gr. 2		SAE Gr. 5		SAE Gr. 8	
	lbf•ft	N•m	lbf•ft	N•m	lbf•ft	N•m
1/4"	6	8	9	12	12	17
5/16"	10	13	19	25	27	36
3/8"	20	27	33	45	45	63
7/16"	30	41	53	72	75	100
1/2"	45	61	80	110	115	155
9/16"	60	95	115	155	165	220
5/8"	95	128	160	215	220	305
3/4"	165	225	290	390	400	540
7/8"	170	230	420	570	650	880
1"	225	345	630	850	970	1320



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

### Metric Bolt Torque Specifications

Bolt Diameter	Torque Value			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1 495	1,550	2 100



8.8



10.9

### Wheel Lug Torque

It is extremely important safety procedure to apply and maintain proper wheel mounting torque on your trailer axle. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

Wheel lugs should be torqued before first road use and after each wheel removal. Check and re torque after the first 10 miles (16 km), 25 miles (40 km), and again at 50 miles (80 km). Check periodically thereafter.

**NOTE:** *Wheel lugs must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.*

- Start all lugs by hand to prevent cross threading.
- Tighten lugs in sequence, per wheel lug torque sequence chart.
- The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque requirements chart.

Wheel Lug Nut Torque				
Wheel Size	Units	1st Stage	2nd Stage	3rd Stage
8"	lbf•ft N•m	12–20 16–26	30–35 39–45.5	45–55 58.5–71.5
12"	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
13"	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
14"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
15"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
16"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156

Wheel Lug Torque Pattern

