



**4050 40' AIR SEEDER
2008 INTERNATIONAL MODEL**

ASSEMBLY AND PARTS MANUAL

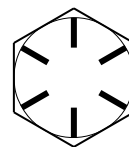
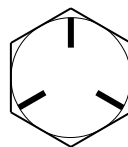
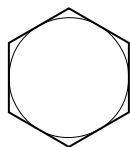


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SALFORD RECOMMENDED TORQUE VALUES



BOLT SIZE	GRADE 2		GRADE 5		GRADE 8	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
1/2"NC	50	68	75	102	105	142
5/8"NC	90	122	150	203	210	285
3/4"NC	160	217	270	366	375	508
7/8"NC	145	197	395	536	610	827
1"NC	210	285	590	800	910	1234

NOTES: These recommended torque values are applicable when applied to the nut only. These recommended torque values are approximate only. The torque-tension relationship is affected by lubrication, surface finish, thread fit, plating, lock-washers, etc.

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

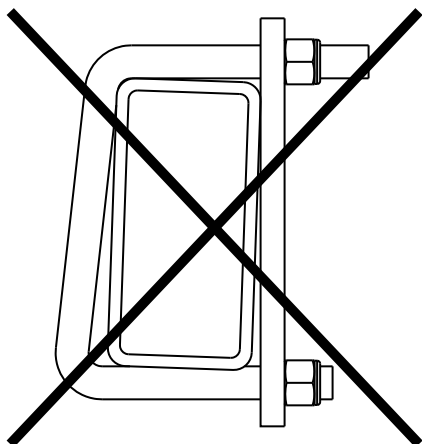
Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher-grade fasteners are used, these should only be tightened to the strength of the original.

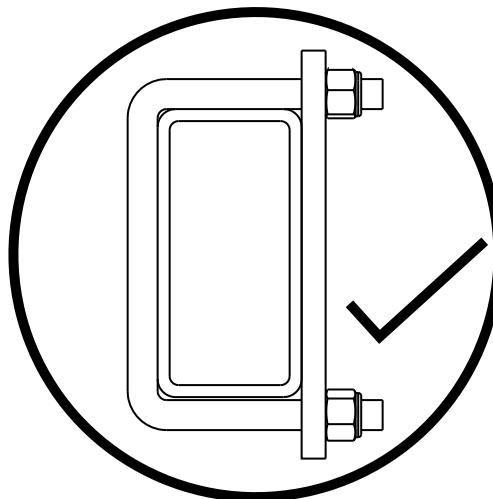
Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

WARNING

Do not tighten one side of the u-bolt before the other side.



Both sides of the u-bolt must be tightened equally.



General Safety Precautions

Signal Words

The words **DANGER**, **WARNING** or **CAUTION** are used with the safety alert symbol. Learn to recognize the safety alerts, and follow the recommended precautions and safe practices.

Three words are used in conjunction with the safety-alert symbol:



DANGER

Indicates an imminently hazardous situation that, if not avoided, will cause **DEATH OR VERY SERIOUS INJURY**.



WARNING

Indicates a potentially hazardous situation that, if not avoided, could cause **DEATH OR SERIOUS INJURY**.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in **MINOR or MODERATE INJURY**.

Replace any **DANGER**, **WARNING**, **CAUTION** or instructional decal that is not readable or is missing. The location and part number of these decals is identified later in this section of the manual.

The words **Important** and **Note** are not related to personal safety but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: Identifies special instructions or procedures which, if not strictly observed could result in damage to, or destruction of the machine, process or its surroundings.

NOTE: Indicates points of particular interest for more efficient and convenient repair or operation.

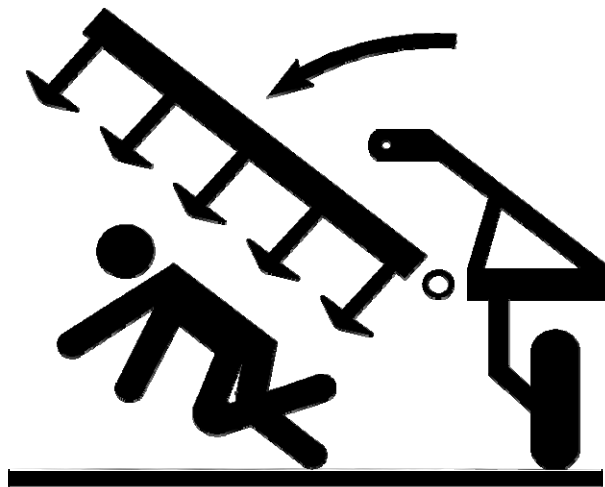
A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT !

General Safety Precautions



DANGER

- Wings may fall rapidly causing injury.
- Always stay clear of wings when being lowered, raised or in a elevated state.
- Always use lockup device provided when raised.
- Ensure cylinder is completely filled with hydraulic fluid to avoid unexpected movement.

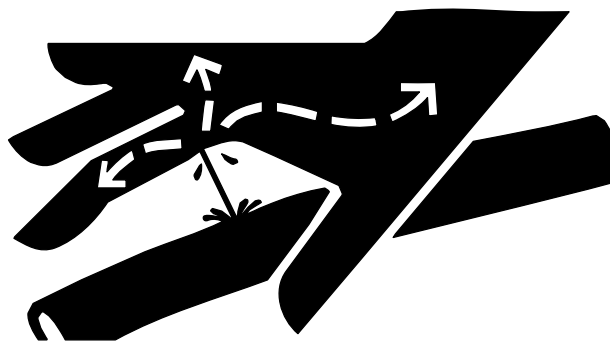


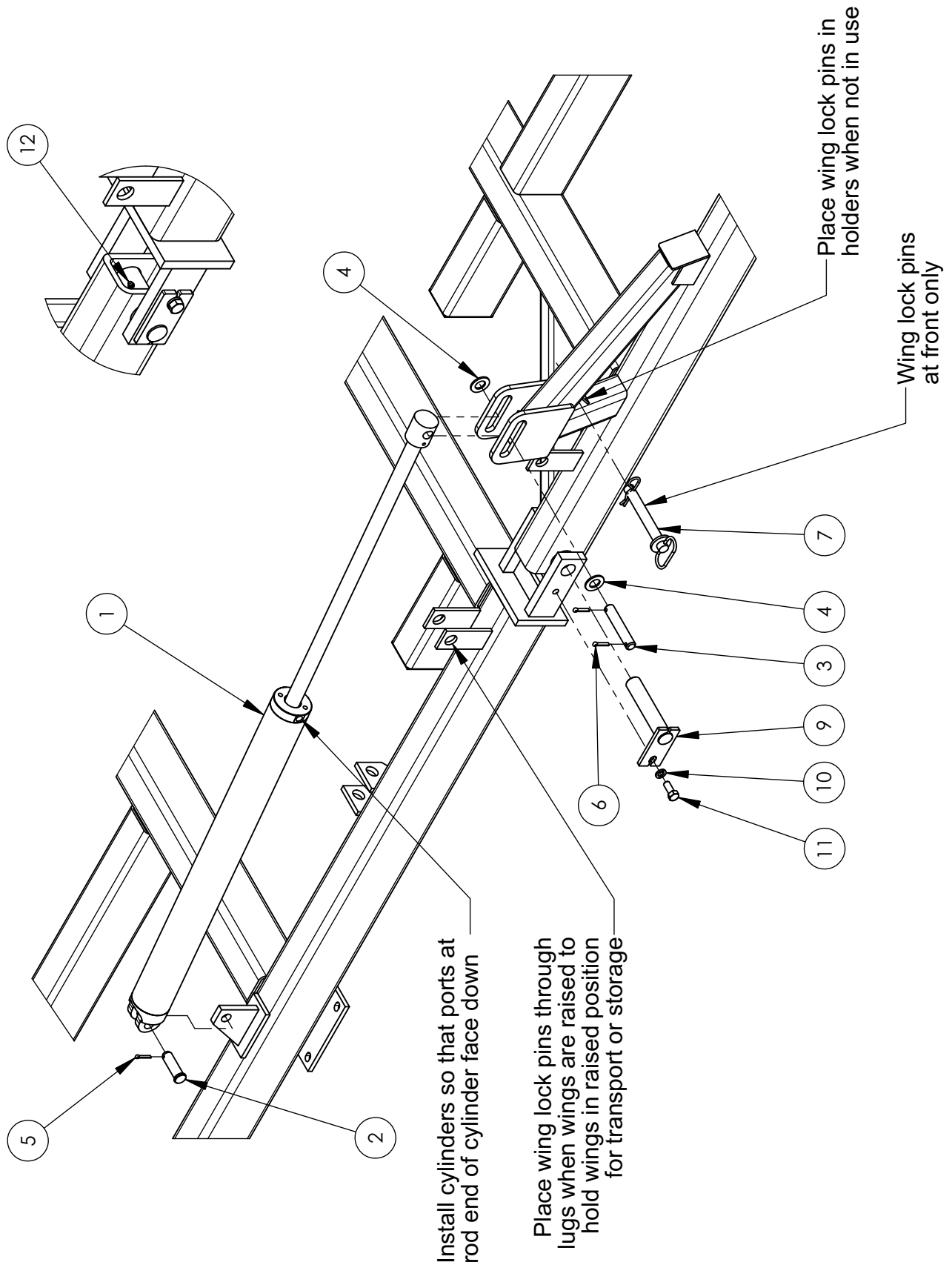
Hydraulics



DANGER

- **Do not** search for high pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.
- Use cardboard or wood to detect leaks – never your hands.
- Double check that all is clear before operating hydraulics.
- **Never** remove hydraulic hoses or ends with machine elevated. Relieve hydraulic pressure before disconnecting hydraulic hoses or ends.
- Maintain proper hydraulic fluid levels.
- Keep all connectors clean for positive connections.
- Ensure all fittings and hoses are in good condition.
- Do not stand under wings.





WING INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	4	HS3536	3 1/2" BORE x 36" STROKE HYD. CYLINDER
2	4	GP1600314H04	PIN 1" DIA. x 3 1/4" LG. WITH HEAD
3	4	GP1600512A05	PIN 1" DIA. x 5 1/2" LG. - 2 HOLES
4	8	BF16S	1" SAE WASHER
5	4	BSC0415	1/4" x 1 1/2" COTTER PIN
6	8	BSC0515	5/16" x 1 1/2" COTTER PIN
7	2	GP1600614C03	1" x 6 1/4" ORANGE HITCH PIN
8	4	GPSPEC24080	WING HINGE PIN
9	4	BF10	5/8" LOCKWASHER
10	4	B1015	5/8 X 1 1/2" PLATED BOLT
11	4	GF1610	1/8" NPT GREASE FITTING

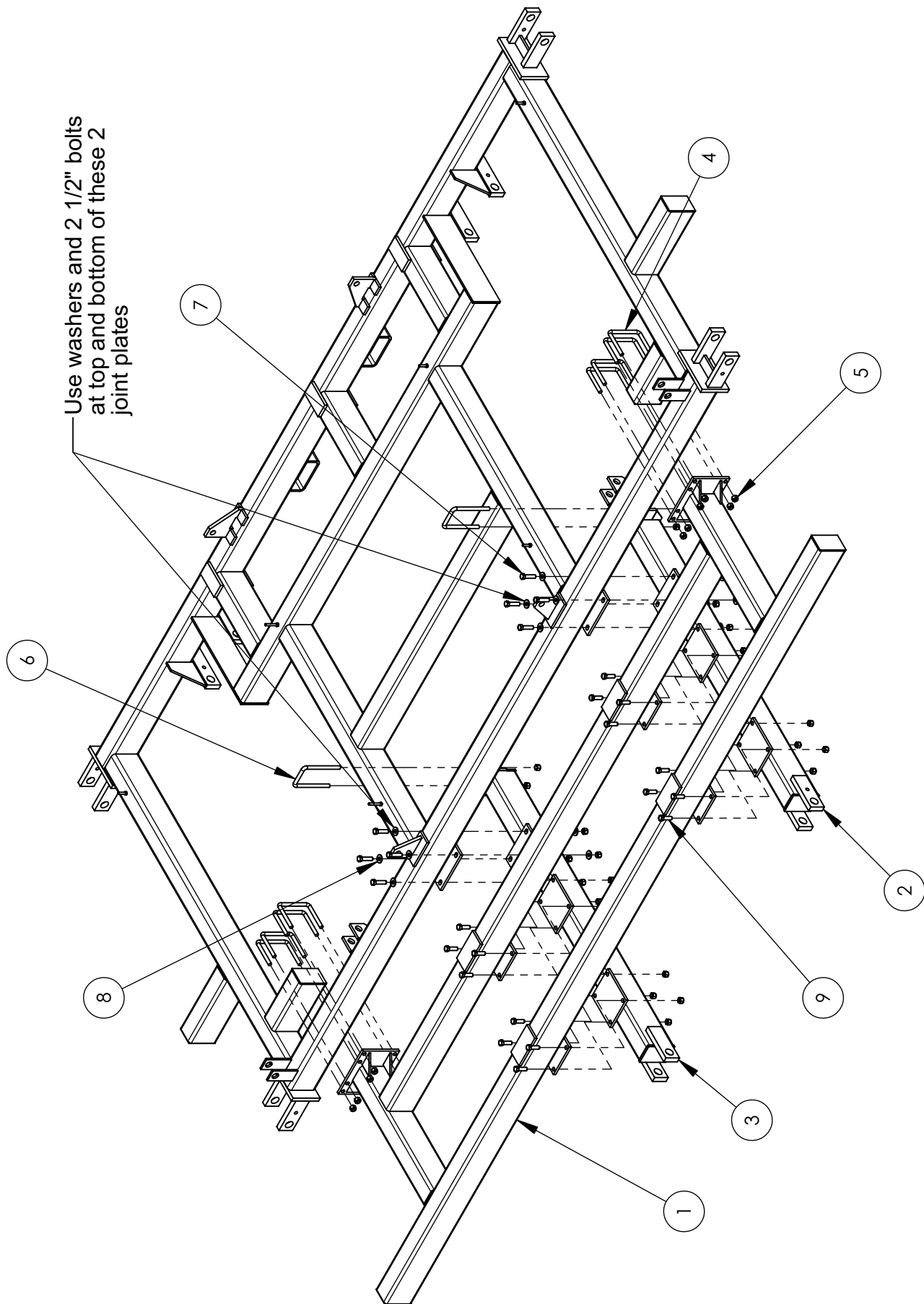
1. Position main frame on stands. Use adequately strong stands or heavy wood blocks to support the main frame about 36" above the floor of the assembly area. Make sure the frame is stable, secure and reasonably level.
2. Install grease fittings (11) into wings at hinge points.
3. Install LH & RH wings. Lubricate the hinge pins (8) with grease and install as shown. Retain the pin to the frame with a 5/8 x 1 1/2" hex bolt (10) and lock washer (9).
4. Attach barrel ends of 3 1/2" x 36" cylinders (1) to lugs on main frame with 1" x 3 1/4" head pins (2) and 1/4" x 1 1/2" cotter pins (5).



DANGER

Connect hoses and charge the wing cylinders with fluid following the procedure in the wing fold hydraulics section of this manual before connecting rod ends of the cylinders.

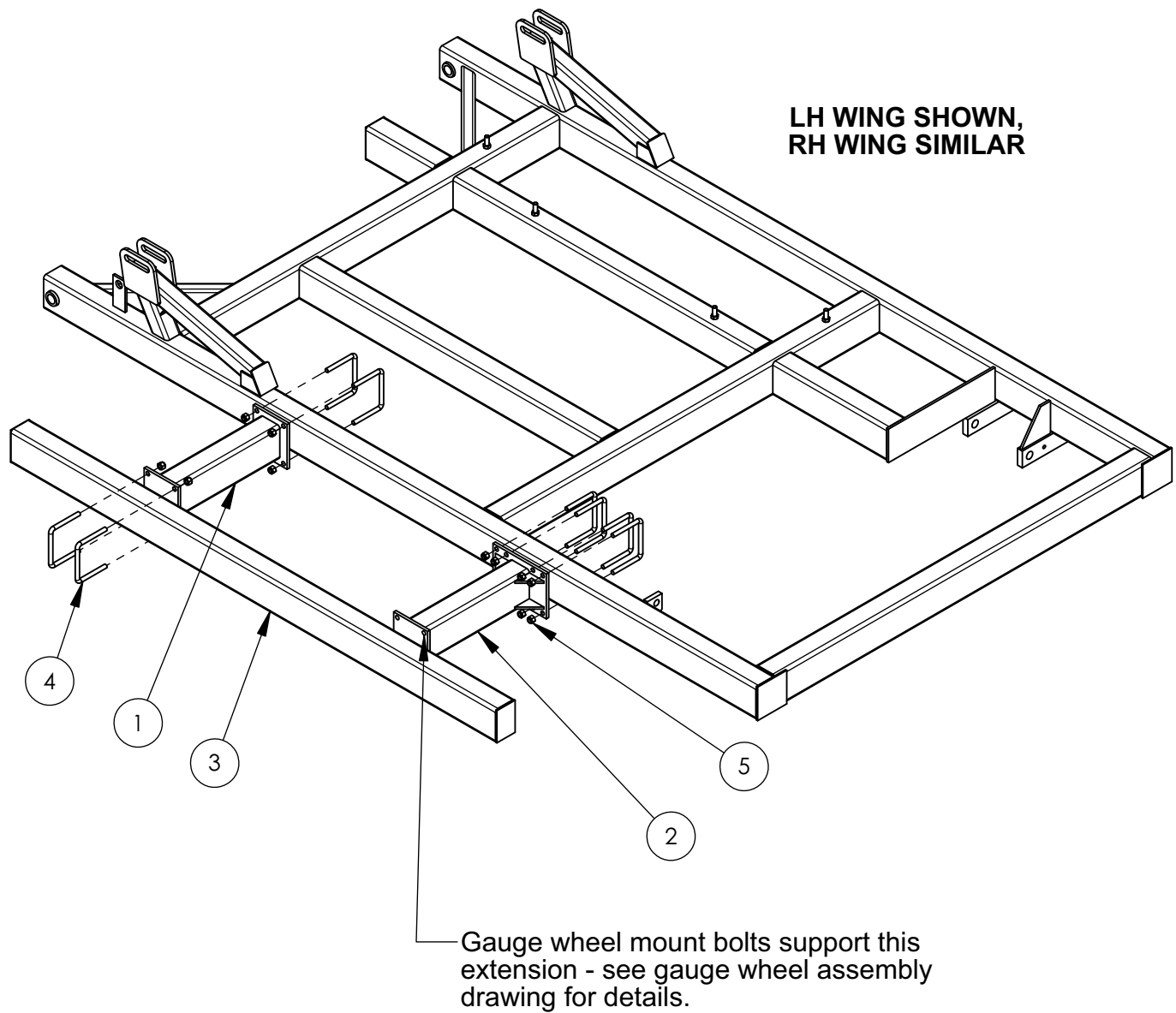
5. Attach rod ends of cylinders to lugs on wings with 1" x 5 1/2" pins (3), 1" SAE washers (4), and 5/16" x 1 1/2" cotter pins (6). Washers go between lugs and cotter pins.
6. Place wing lock pin (7) in holders provided under wing cylinder lugs and retain pin with included #9 hairpin. Wing lock pins are under the front two wing cylinders only.
7. Apply grease to all fittings.



MAIN FRAME 5TH BAR INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	T00329	MAIN FRAME 5TH BAR WELDMENT - 40'
2	1	T00330L	5TH BAR SUPPORT - LH
3	1	T00330R	5TH BAR SUPPORT - RH
4	8	BU1061	U-BOLT 5/8" x 6" x 5 1/2"
5	44	BN10L	5/8" NYLOCK NUT NC
6	2	BU1046	U-BOLT 5/8" x 4" x 7 1/2" LG.
7	8	B1025	5/8 X 2 1/2" GR.5 PLATED BOLT
8	16	BF10HS	5/8" HARD STRUCTURAL FLAT WASHER
9	16	B1020	5/8 X 2" BOLT GR. 5 PLATED

1. Place main frame 5th bar weldment (1) on top of LH support (2) and RH support (3). Note that supports are marked on the rear - "L" for LH and "R" for RH. Attach with 5/8" x 2" hex bolt (9) and 5/8" locknut (5). Do not tighten bolts yet.
2. Line up 5th bar subassembly with main frame. Attach rear of supports with narrow u-bolt (6) and 5/8" locknuts (5). Attach middle of supports to main frame with 5/8" x 2 1/2" hex bolts (7), 5/8" structural washers (8), and 5/8" locknuts (5). Attach ends of 5th bar weldment to main frame with wide u-bolts (4) and 5/8" locknuts (5). Do not tighten bolts yet.
3. Measure carefully to position the 5th bar weldment exactly in the center of the main frame, then tighten all bolts and nuts, starting with the wide u-bolts (4).



See wheel and axle layout drawing for extension and 5th bar locations.

WING FIFTH BAR INSTALLATION

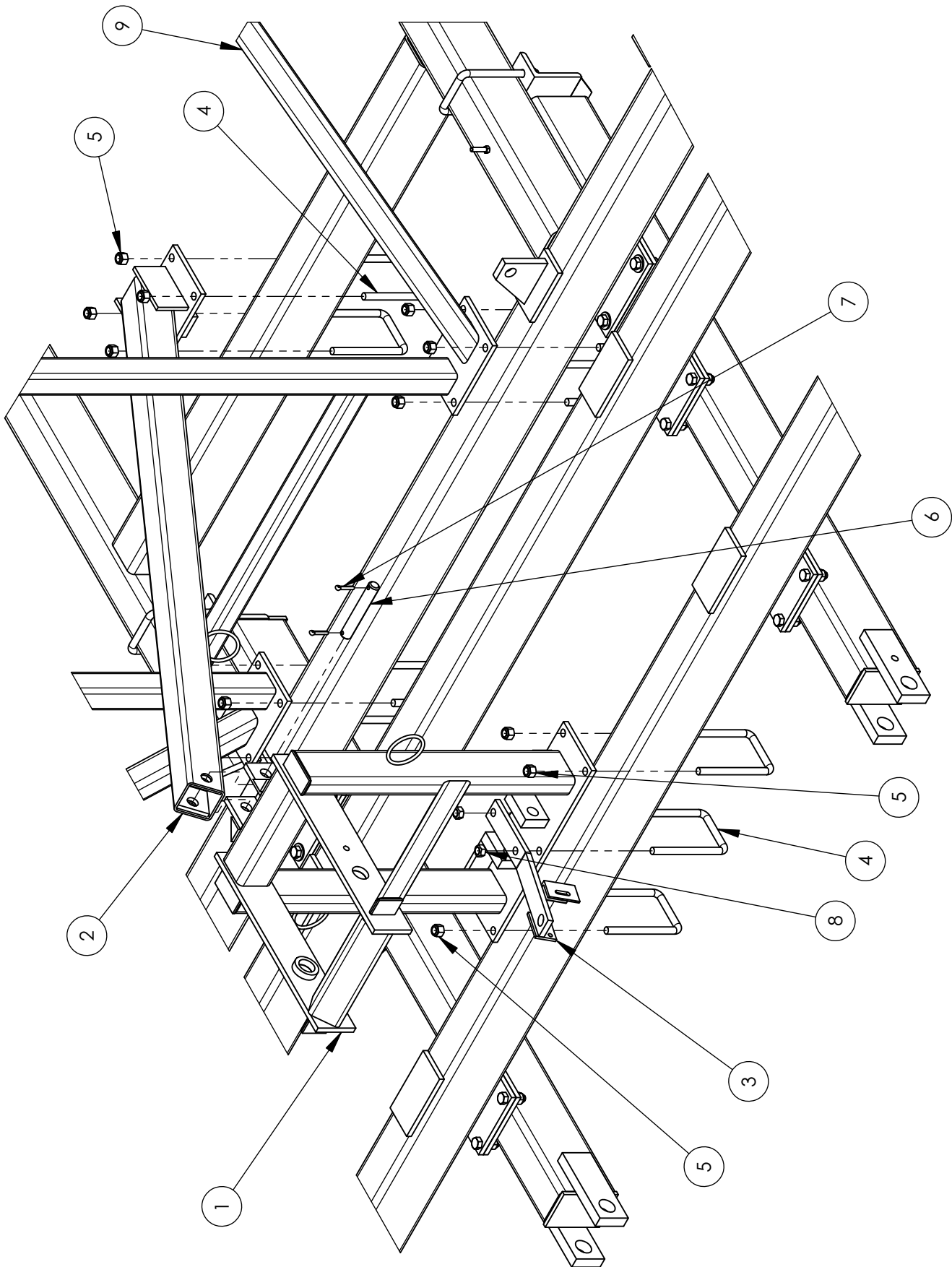
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	T00075	23" EXTENSION
2	1	T00421	23" EXTENSION - 6 U-BOLTS
3	1	UC40604100	CAPPED TUBE 4" x 6" x 1/4"W x 100" LG.
4	8	BU1061	U-BOLT 5/8" x 6" x 5 1/2"
5	16	BN10L	5/8" NYLOCK NUT NC

Note: quantities shown are for fifth bar installation on one side only. Double quantities for complete wing 5th bar installation.

1. Install fifth bar extensions (1 & 2) on wings at locations shown on wheel and axle layout drawing. Retain with wide u-bolt (4) and 5/8" locknuts (5). Do not tighten bolts yet.

2. Attach wing fifth bar tube (3) to extensions with wide u-bolts (4) and 5/8" locknuts (5). Verify locations of extensions and fifth bars, then tighten all bolts.

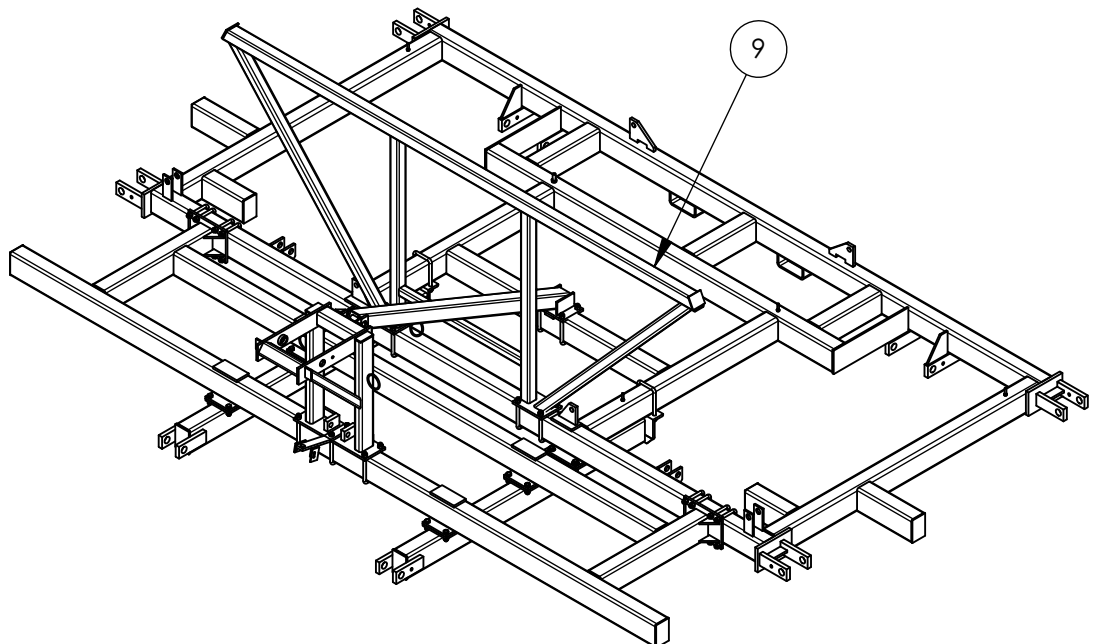
Note: fifth bar tube will also be supported by gauge wheel mount bolts - see gauge wheel drawing for details.

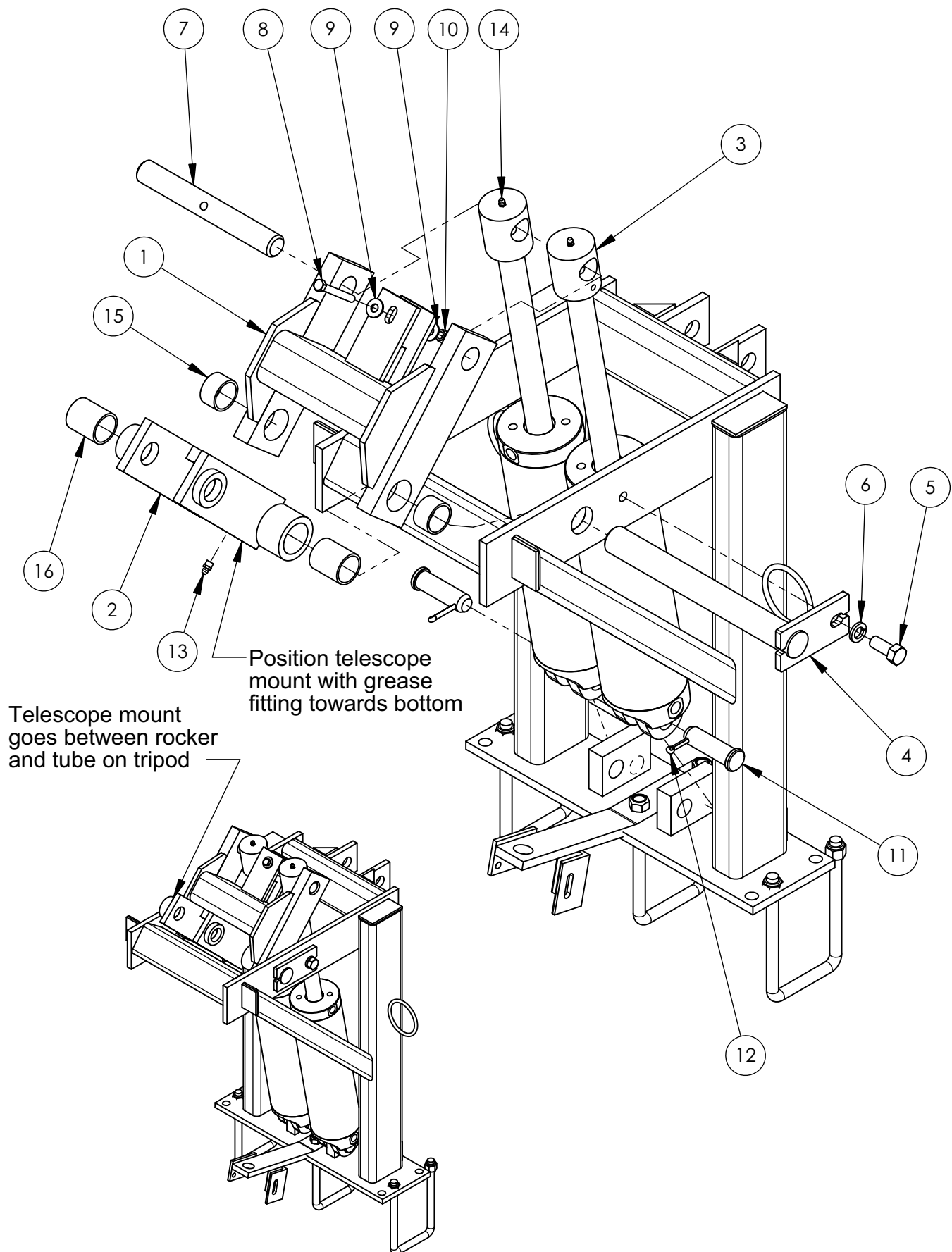


TRIPOD AND WING REST INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	T00426	2008 AIR SEEDER TRIPOD TOWER
2	1	T00170	580 TRIPOD BRACE
3	1	T00044	BRACKET,DEPTH CONTROL HOLDER
4	9	BU1046	U-BOLT 5/8" x 4" x 7 1/2" LG.
5	16	BN10L	5/8" NYLOCK NUT NC
6	1	GP1600614A05	PIN 1" DIA. x 6 1/4" LG. - 2 HOLES
7	2	BSC0515	5/16" x 1 1/2" COTTER PIN
8	2	BN10S	5/8" NC STOVER LOCK NUT
9	1	T00168	A-S WING REST

1. Mount tripod tower (1) to middle of front beam of main frame fifth bar. Attach with narrow u-bolts (4) and 5/8" locknuts (5) in outer holes. In middle set of holes, position depth control bracket (3) over holes as shown, and retain with narrow u-bolt (4) and 5/8" stover locknuts (8). Do not tighten bolts until tripod brace is installed.
2. Mount wing rest (9) to main frame front beam. Attach with narrow u-bolt (4) and 5/8" locknuts (5). Centre wing rest on frame before tightening bolts.
3. Attach tripod brace (2) to tower with 1" x 6 1/4" pin (6) and 5/16" x 2" cotter pins (7). Attach tripod brace to main frame with narrow u-bolt (4) and 5/8" locknuts (5).
4. Make sure tripod tower and brace are centered on frame, then tighten all bolts.





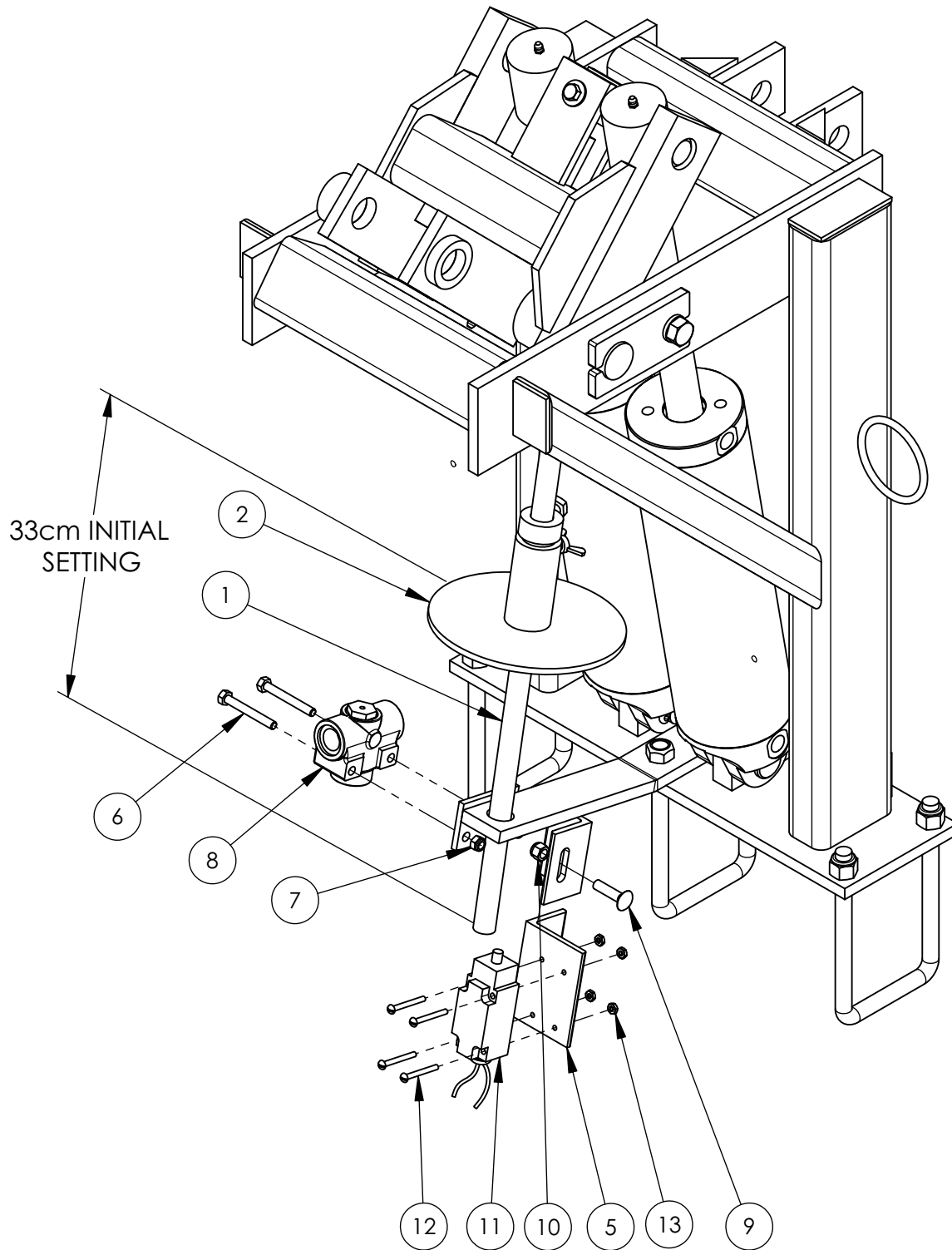
SELF LEVELLING TOWER ASSEMBLY

2008 4050 AIR SEEDER ONLY

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	T00427	AIR SEEDER ROCKER WELDMENT
2	1	T00428	AIR SEEDER TELESCOPE MOUNT BRCT.
3	2	HSR40095	4" BORE x 9 1/2" STROKE HYD. CYLINDER
4	1	GPH2401312F	HARD PLATE PIN 1 1/2" x 13 1/2" LG.
5	1	B1015	5/8 X 1 1/2" PLATED BOLT
6	1	BL10	5/8" LOCKWASHER
7	1	GPSPEC200934	Ø 1 1/4" x 9 3/4" CENTRE HOLE PIN
8	1	B0630	3/8"NC x 3" HEX BOLT
9	2	BF06	3/8" FLATWASHER
10	1	BN06L	3/8"-16NC LOCK NUT
11	2	GP1600314H04	PIN 1" DIA. x 3 1/4" LG. WITH HEAD
12	2	BSC0415	1/4" x 1 1/2" COTTER PIN
13	1	GF1610	1/8" NPT GREASE FITTING
14	2	GF641	1/4"-28NF GREASE FITTING
15	2	GBB175150100	1 3/4" x 1 1/2" x 1" LG. HARD BUSHING
16	2	GBB175150200	1 3/4" x 1 1/2" x 2" LG. HARD BUSHING

1. Line up telescope mount (2) and rocker (1) with holes on tripod. Insert 1 1/2" x 13 1/2" flatbar pin (4) through tripod, rocker, and telescope mount. Retain pin with 5/8" x 1 1/2" hex bolt (5) and 5/8" lockwasher (6). Position the telescope mount so the grease fitting is at the bottom.
2. Attach base end of 4" bore x 9 1/2" stroke hydraulic cylinders (3) to tripod with 1" x 3 1/4" head pin (11) and 1/4" x 1 1/2" cotter pin (12). Note: cylinder ports should point towards wings of machine.
3. Attach cylinder rods to rocker with 1 1/4" x 9 3/4" centre hole pin (7). Retain pin to rocker with 3/8" x 3" hex bolt (8), 3/8" flatwashers (9) top and bottom, and 3/8" locknut (10).
4. Insert 1/8" NPT grease fittings (13) into telescope mount and 1/4"-28 grease fittings (14) into cylinder rod ends if not already done. Grease all fittings.

Note: replaceable bushings (15 & 16) are preinstalled from the factory.



AIR SEEDER/AIR DRILL DEPTH CONTROL

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	T00047	AIR SEEDER DEPTH CONTROL ROD - 28"
2	1	C1008	DETENT ADJUSTABLE STOP
3	1	B0820	1/2"NC x 2" LG. HEX BOLT
4	1	BN08L	1/2" NYLOCK NUT NC
5	1	T00172B	580 CLUTCH SWITCH MOUNT 1 OF 2
6	2	B0525	5/16"NC x 2 1/2" HEX BOLT
7	2	BN05L	5/16" LOCK NUT
8	1	HPMSC10	STROKE CONTROL VALVE
9	1	BC0612	3/8" x 1 1/4" CARRIAGE BOLT
10	1	BN06L	3/8"-16NC LOCK NUT
11	1	T00119	LIMIT SWITCH LS45M11B11
12	4	B0217	#10-24 x 1 3/4" MACHINE SCREW
13	4	BN02	#10-24 HEX NUT

1. Insert depth control rod (1) through adjustable stop disc (2). Insert assembly through hole in depth control mount.



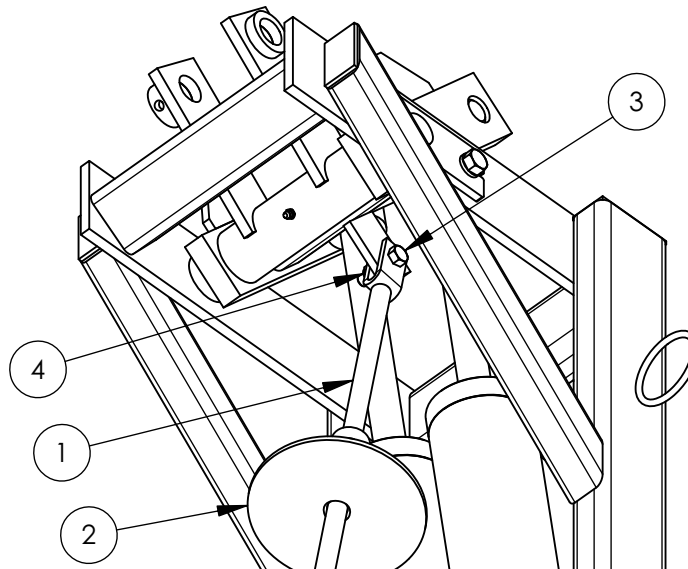
CAUTION

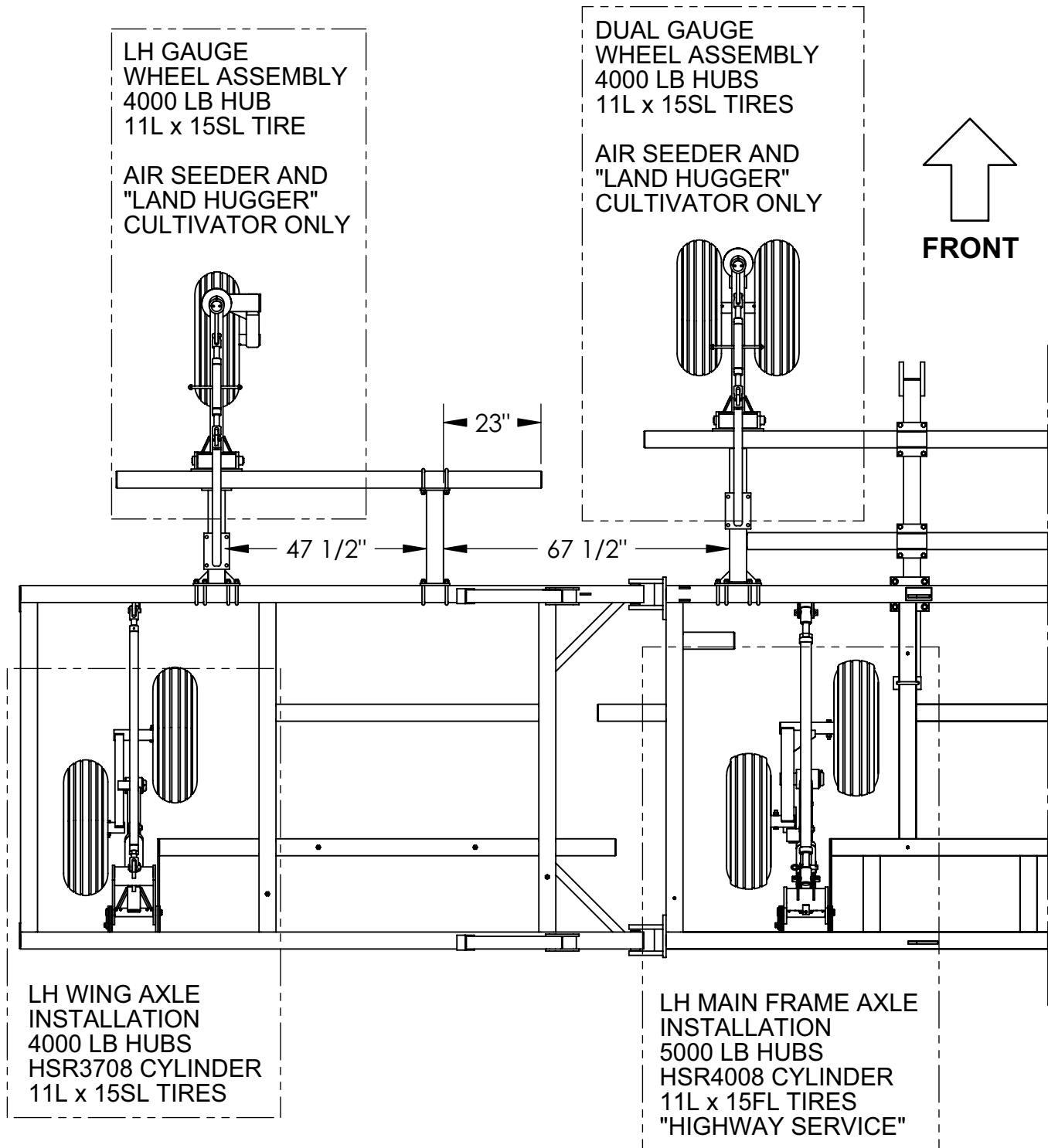
Do not put stop disc more than 33cm from the end of the depth control rod. If it is too high it can damage hoses or contact the cylinder and bend the depth control rod. Final position can be set when performing final field set up adjustments.

2. Attach depth control rod to lug on bottom of rocker with 1/2" x 2" hex bolt (3) and 1/2" locknut (4).

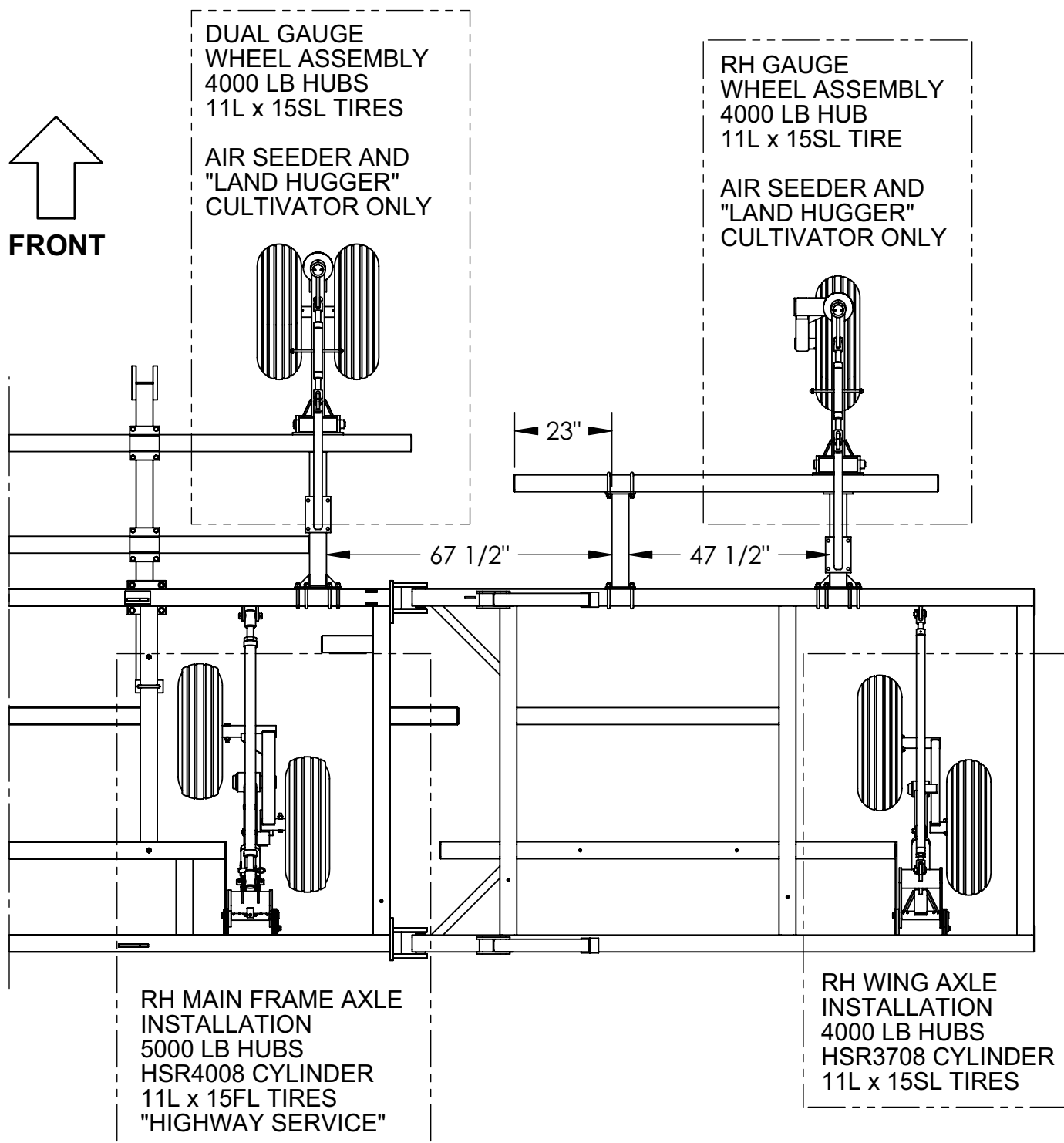
3. Mount stroke control valve (8) to depth control bracket with 5/16" x 2 1/2" hex bolts (6) and 5/16" locknuts (7). Plunger on valve should point upwards.

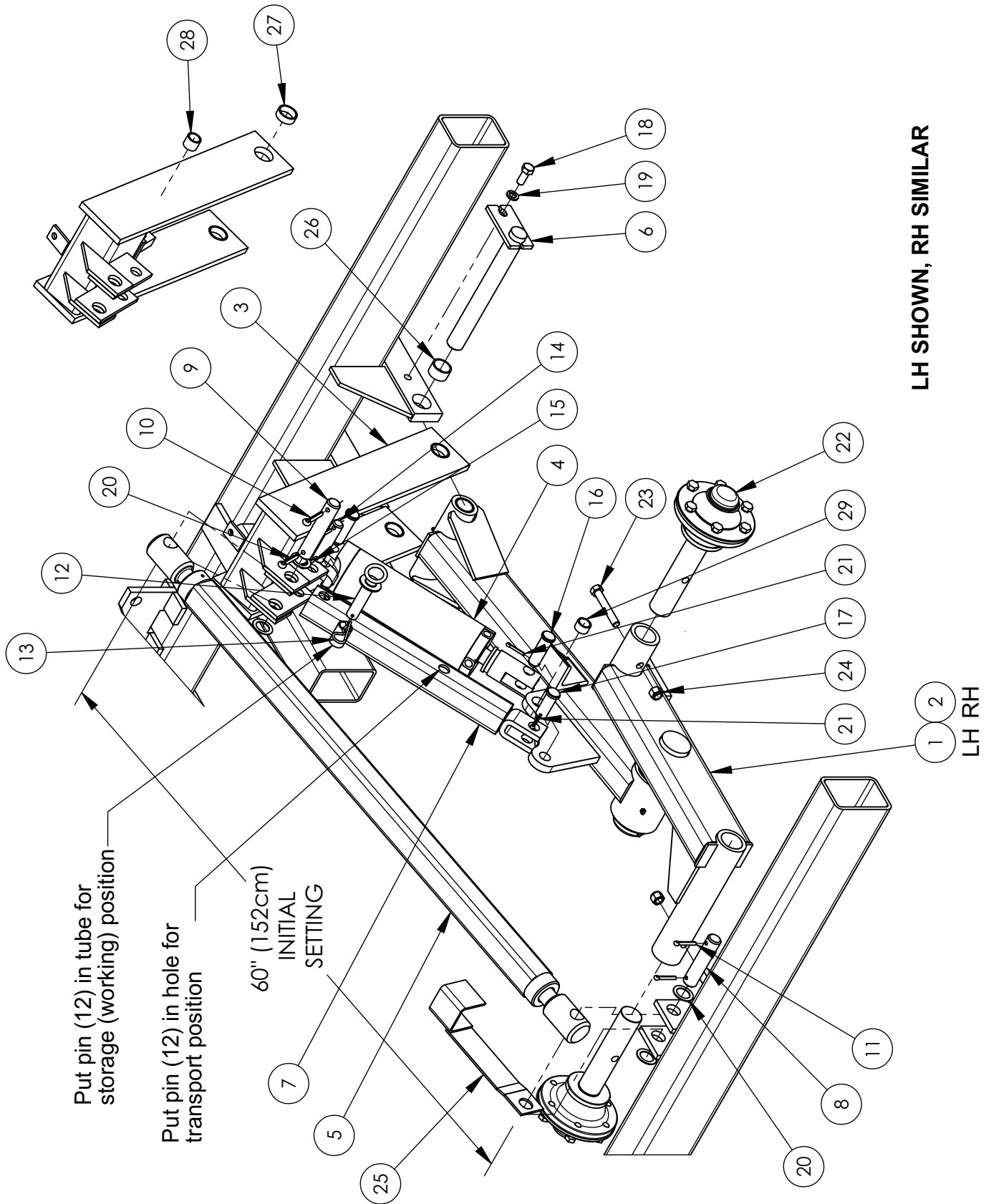
4. Attach limit switch mount (5) to depth control bracket with 3/8" x 1 1/2" carriage bolt (9) and 3/8" locknut (10). Mount limit switch (11) to bracket with #10-24 x 1 3/4" machine screws (12) and #10-24 hex nuts (13). Adjust limit switch to same height as stroke control valve.





40' CULTIVATOR WHEEL AND AXLE LAYOUT



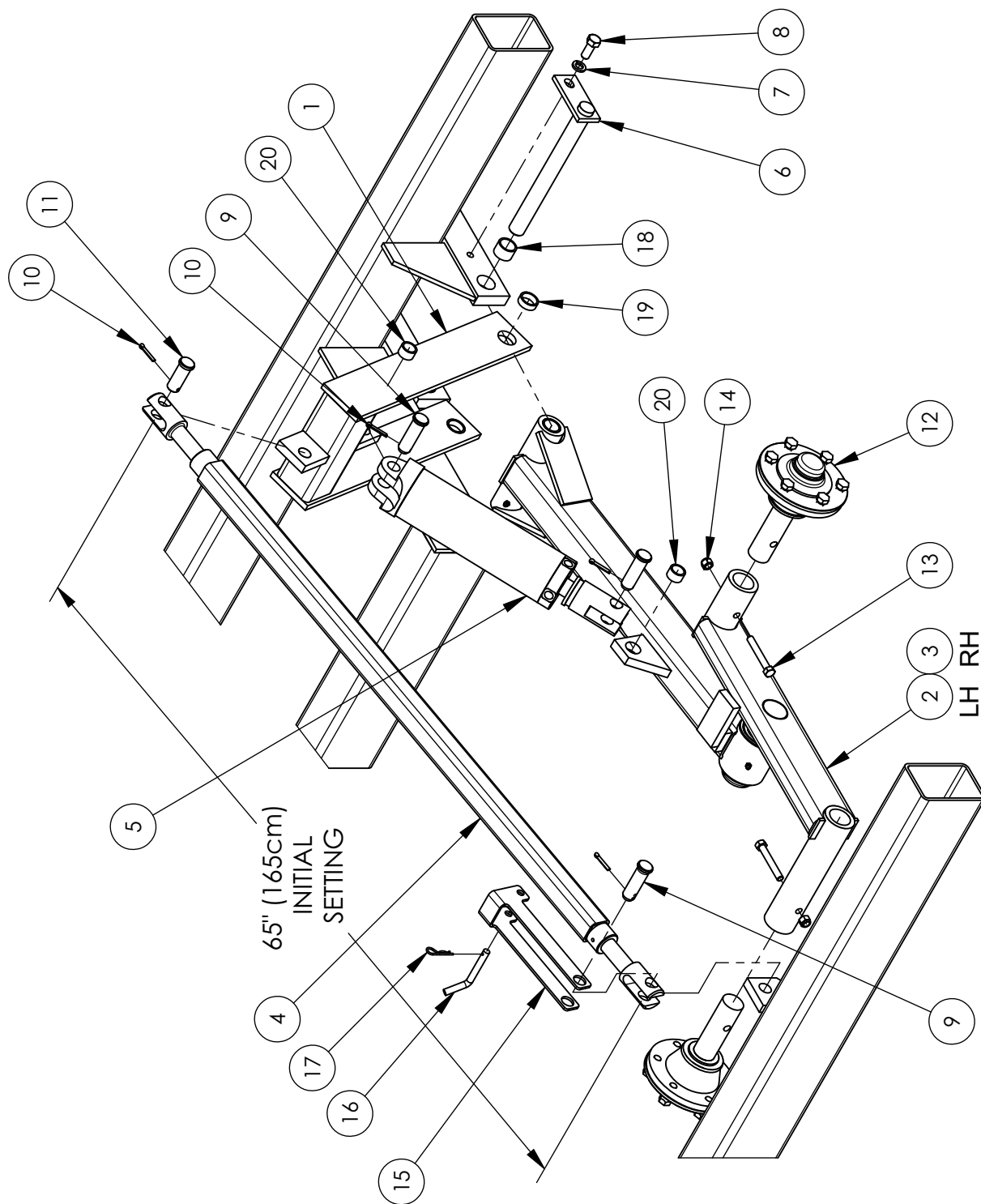


MAIN FRAME AXLE INSTALLATION - 40 ft

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	C5540L	8000 LB AXLE ASSEMBLY - LH
2	1	C5540R	8000 LB AXLE ASSEMBLY - RH
3	2	C10013	MAIN FRAME TOWER
4	2	HSR4008	4" BORE x 8" STROKE HYD. CYLINDER
5	2	A60031	AIR SEEDER MAIN FRAME TURNBUCKLE
6	2	GPH2401312F	1 1/2" x 13 7/8" LG. AXLE PIN - HARDENED
7	2	C50010	TRANSPORT LOCK ASSEMBLY
8	2	GP2000512A05	1 1/4" x 5 1/2" PIN - 2 HOLES
9	2	GP2000612A06	1 1/4" x 6 1/2" PIN - 2 HOLES
10	4	BSC0620	3/8" x 2" COTTER PIN
11	4	BSC0520	5/16" x 2" COTTER PIN
12	2	GP1600414C04	RING & WASHER WING LOCK PIN
13	2	GHP9	#9 HAIR PIN
14	2	GP1600412A05	1" DIA. x 4 1/2" LG, 2 HOLE PIN
15	4	BSC0515	5/16" x 1 1/2" COTTER PIN
16	4	GP1600314H04	PIN 1" DIA. x 3 1/4" LG. WITH HEAD
17	2	GP1600258H04	PIN 1" DIA. x 2 5/8" LG. WITH HEAD
18	2	B1015	5/8 X 1 1/2" PLATED BOLT
19	2	BL10	5/8" LOCKWASHER
20	8	GM30	1 1/4" MACHINE BUSHING
21	6	BSC0415	1/4" x 1 1/2" COTTER PIN
22	4	GW5000A	5000 LB HUB AND SPINDLE ASSEMBLY
23	4	B1040	5/8"NC x 4" LG. HEX BOLT
24	4	BN10L	5/8" NYLOCK NUT NC
25	2	C10716	570 MAINFRAME TURNBUCKLE LOCK
26	1	GBB175150100	1 3/4" x 1 1/2" x 1" LG. HARD BUSHING
27	1	GBB175150062	1 3/4" x 1 1/2" x 5/8" LG. HARD BUSHING
28	1	GBB125100100	1 1/4" x 1" x 1" LG. HARD BUSHING
29	1	GBB125100075	1 1/4" x 1" x 3/4" LG. HARD BUSHING

Note: quantities shown are for complete main frame axle installation - both LH and RH.

- Line up axle tower (3) and upright of tandem axle assembly (1, 2) with lugs on main frame. Insert 1 1/2" x 13 1/2" flatbar pin (6) through tower and axle. Retain pin with 5/8" x 1 1/2" hex bolt (18) and 5/8" lockwasher (19). Note orientation of lugs on axle towers.
- Set mainframe turnbuckle (5) to 60" (152cm) long pin to pin. Place turnbuckle lock (25) over turnbuckle and attach turnbuckle to frame with 1 1/4" x 5 1/2" pin (8), 1 1/4" machine bushings (20), and 5/16" x 2" cotter pins (11). Attach turnbuckle to axle tower with 1 1/4" x 6 1/2" pin (9), 1 1/4" machine bushings (20), and 3/8" x 2" cotter pins (10). Note: bushings go between plates and cotter pins.
- Attach 4" bore x 8" stroke hydraulic cylinder (4) to axle tower and axle beam with 1" x 3 1/4" head pins (16) and 1/4" x 1 1/2" cotter pins (21). **Connect hoses and charge lift axle cylinders with fluid following the procedure in the axle lift hydraulics section of this manual before connecting rod ends of the cylinders and the transport locks.**
- Attach transport lock (7) to axle tower with 1" x 4 1/2" pin (14) and 5/16" x 1 1/2" cotter pins (15). Attach transport lock to axle beam with 1" x 2 5/8" head pin (17) and 1/4" x 1 1/2" cotter pin (21). Insert 1" x 4 1/4" ring pin (12) into tube on transport lock and retain with #9 hairpin (13).
- Install 5000 lb hub and spindle assemblies (22) into axles and retain with 5/8" x 4" hex bolts (23) and 5/8" locknuts (24).
- Apply grease to all fittings. Replaceable hardened bushings (26-29) are preinstalled from the factory.



LH SHOWN, RH SIMILAR

WING AXLE INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	C4547B	TOWER, 450/550/570 WING
2	1	C4540WL	5000 LB WING AXLE ASSEMBLY - LH
3	1	C4540WR	5000 LB WING AXLE ASSEMBLY - RH
4	1	A60025	AIR SEEDER WING TURNBUCKLE
5	1	HSR3708	3 3/4" BORE x 8" STROKE HYD. CYLINDER
6	1	GPH2001314F	1 1/4" x 13 1/2" LG. AXLE PIN - HARDENED
7	1	BL10	5/8" LOCKWASHER
8	1	B1015	5/8 X 1 1/2" PLATED BOLT
9	3	GP1600314H04	PIN 1" DIA. x 3 1/4" LG. WITH HEAD
10	4	BSC0415	1/4" x 1 1/2" COTTER PIN
11	1	GP1600258H04	PIN 1" DIA. x 2 5/8" LG. WITH HEAD
12	2	GW4000A	4000 LB HUB AND SPINDLE ASSEMBLY
13	2	B0835	1/2 X 3 1/2" BOLT
14	2	BN08L	1/2" NYLOCK NUT NC
15	1	FL00051	LIGHT TURNBUCKLE LOCK
16	1	GP0800312L03	1/2" x 3 1/2" PARKING STAND PIN
17	1	GHP11	#11 HAIR PIN
18	1	GBB150125100	1 1/2" x 1 1/4" x 1" LG. HARD BUSHING
19	1	GBB150125050	1 1/2" x 1 1/4" x 1/2" LG. HARD BUSHING
20	2	GBB125100075	1 1/4" x 1" x 3/4" LG. HARD BUSHING

Note: quantities shown are for wing axle installation on one side only. Double quantities for complete machine wing axle installation.

1. Line up axle tower (1) and upright of tandem axle assembly (2, 3) with lugs on wing frames. Insert axle flatbar pin (6) through tower and axle. Retain pin with 5/8" x 1 1/2" hex bolt (8) and 5/8" lockwasher (7). Note orientation of lugs on axle towers.
2. Set wing turnbuckle (4) to 65" (165 cm) long pin to pin. Attach turnbuckle to axle tower with 1" x 2 5/8" head pins (11) and 1/4" x 1 1/2" cotter pins (10). Place turnbuckle lock (15) over turnbuckle and attach to frame with 1" x 3 1/4" head pin (9) and 1/4" x 1 1/2" cotter pin (10). Secure turnbuckle lock to turnbuckle with 1/2" x 3 1/2" L-pin (16) and #11 hairpin (17).
3. Attach 3 3/4" x 8" hydraulic cylinder (5) to axle tower and axle beam with 1" x 3 1/4" head pins (9) and 1/4" x 1 1/2" cotter pins (10).

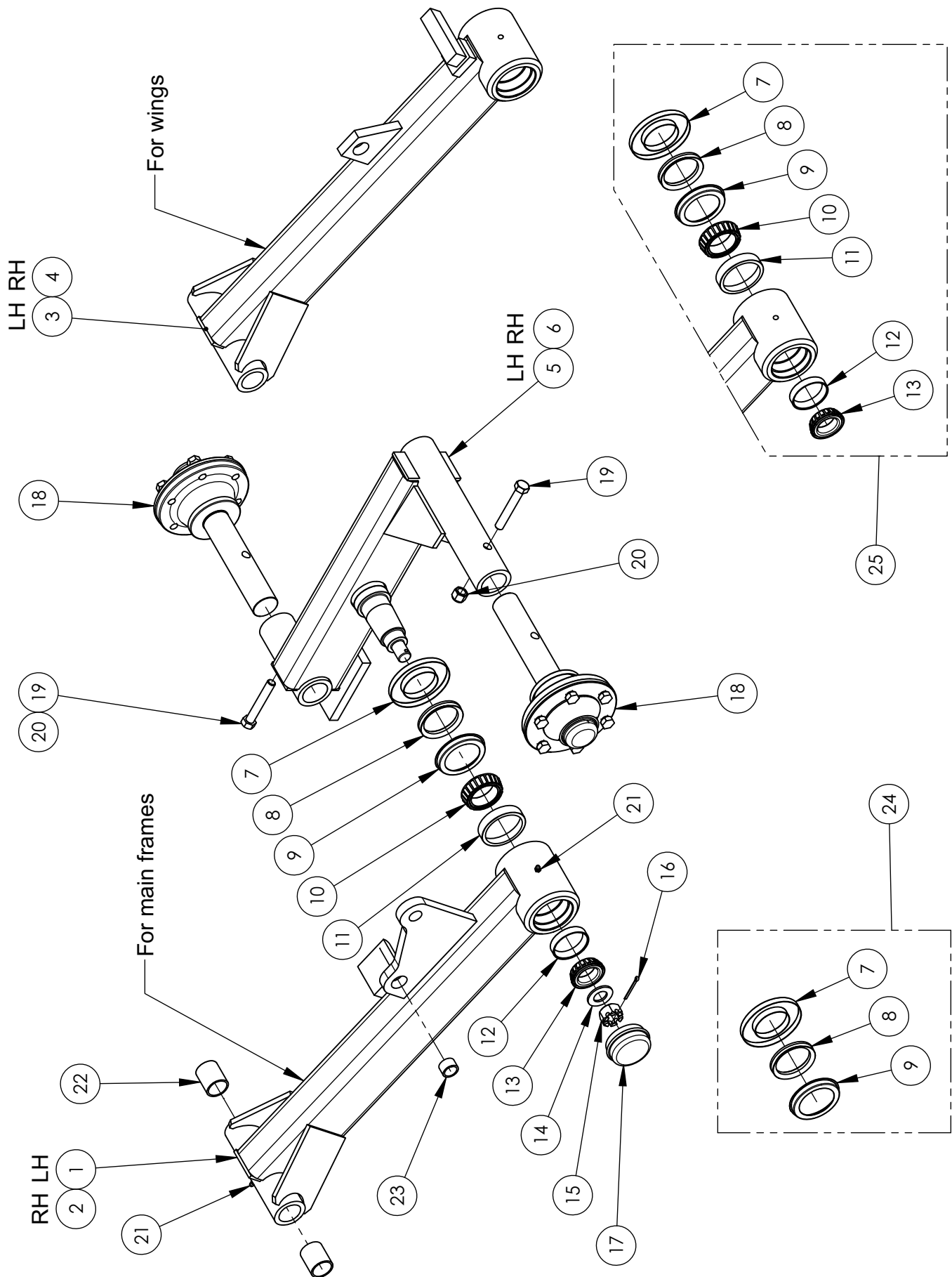


CAUTION

Connect hoses and charge lift axle cylinders with fluid following the procedure in the hydraulics installation before connecting rod ends of the cylinders.

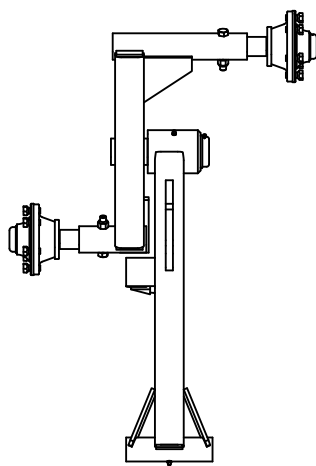
4. Insert 4000 lb hub and spindle assemblies (12) into axles and retain with 1/2" x 3 1/2" hex bolts (13) and 1/2" locknuts (14).
5. Apply grease to all fittings.

Replaceable hardened bushings (18-20) are preinstalled at the factory.

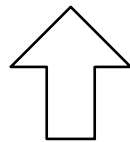


8000 LB TANDEM AXLE ASSEMBLY

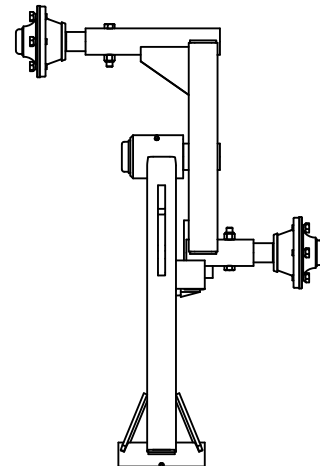
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	C5542L	8000 LB UPRIGHT BEAM - LH
2	1	C5542R	8000 LB UPRIGHT BEAM - RH
3	1	C5542WL	8000 LB WING UPRIGHT BEAM - LH
4	1	C5542WR	8000 LB WING UPRIGHT BEAM - RH
5	1	C5541L	8000 LB WALKING BEAM - LH
6	1	C5541R	8000 LB WALKING BEAM - RH
7	1	GW8110VW	8000 LB V-SEAL GRASS WRAP GUARD
8	1	GW8110VS	8000 LB V-SEAL
9	1	GW8110VC	8000 LB V-SEAL COUNTERFACE
10	1	GB506849	8000 INNER CONE
11	1	GB506810	8000 INNER CUP
12	1	GB501310	8000 OUTER CUP
13	1	GB501349	8000 OUTER CONE
14	1	BF16S	1" SAE WASHER
15	1	BN16S	1" SLOTTED HEX NUT
16	1	BSC0320	3/16" x 2" COTTER PIN
17	1	GW8112	8000 DUST CAP
18	2	GW5000A	5000 LB HUB AND SPINDLE ASSEMBLY
19	2	B1040	5/8"NC x 4" LG. HEX BOLT
20	2	BN10L	5/8" NYLOCK NUT NC
21	2	GF1610	1/8" NPT GREASE FITTING
22	2	GBB175150200	1 3/4" x 1 1/2" x 2" LG. HARD BUSHING
23	1	GBB125100075	1 1/4" x 1" x 3/4" LG. HARD BUSHING
24	1	GW8110V	8000 LB V-SEAL KIT
25	1	GW8111V	8000 LB BEARING WITH V-SEAL KIT



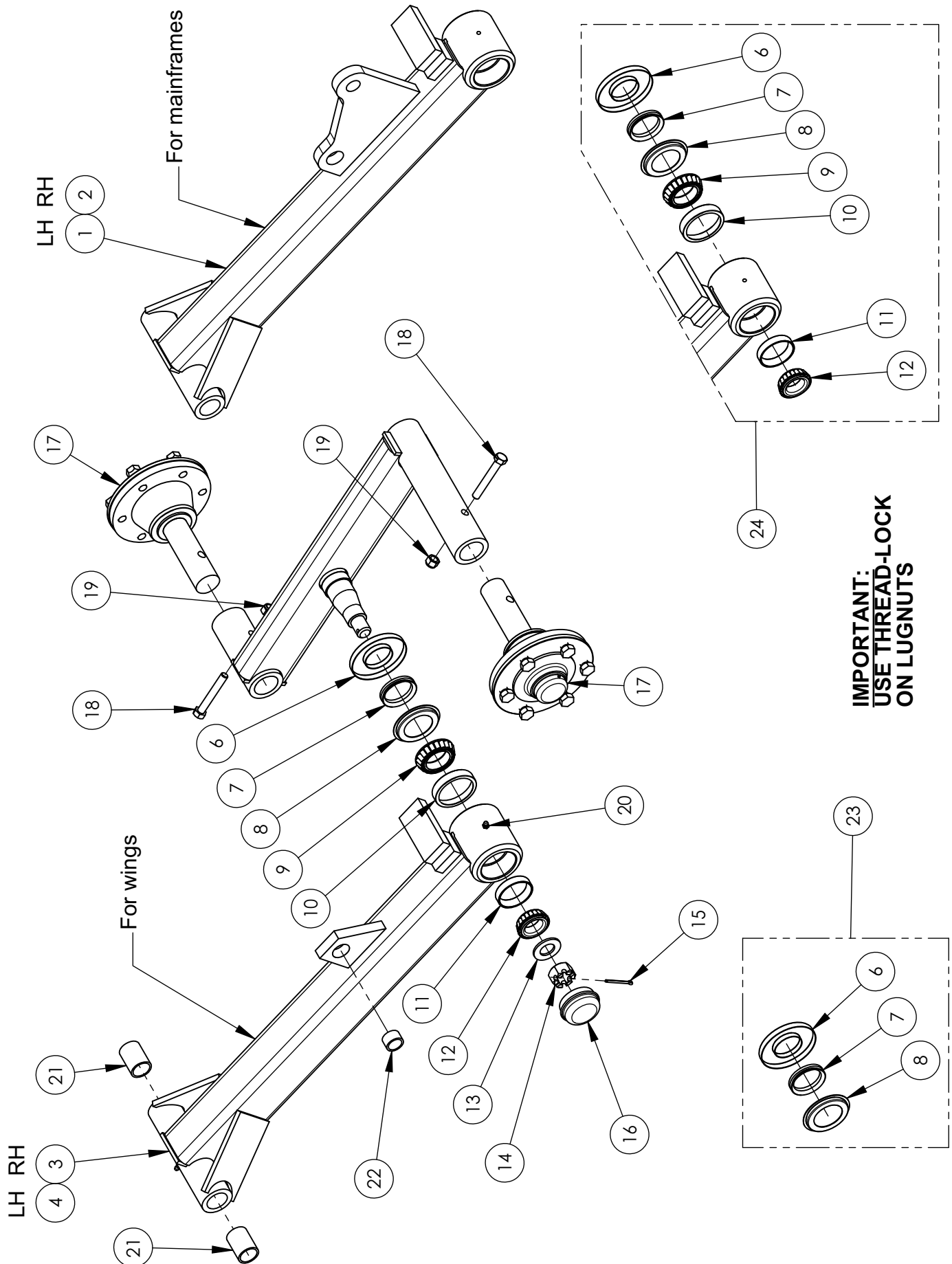
**LH AXLE
ASSEMBLY**



FRONT

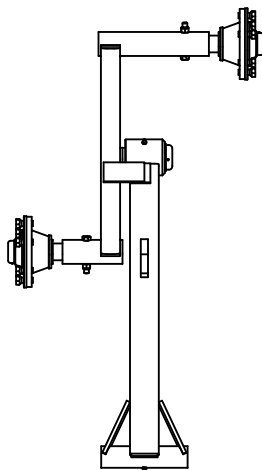


**RH AXLE
ASSEMBLY**

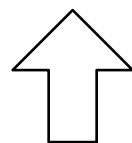


5000 LB TANDEM AXLE ASSEMBLY

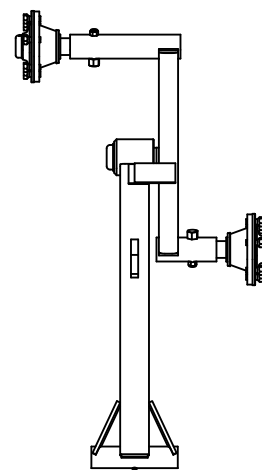
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	C4542L	5000 LB MAIN UPRIGHT AXLE - LH
2	1	C4542R	5000 LB MAIN UPRIGHT AXLE - RH
3	1	C4542WL	5000 LB WING UPRIGHT AXLE - LH
4	1	C4542WR	5000 LB WING UPRIGHT AXLE - RH
5	1	C4541	5000 LB WALKING BEAM
6	1	GW5110VW	5000 LB V-SEAL GRASS WRAP GUARD
7	1	GW5110VS	5000 LB V-SEAL
8	1	GW5110VC	5000 LB SEAL COUNTERFACE
9	1	GB603049	5000/5500 LB INNER CONE
10	1	GB603011	5000/5500 LB INNER CUP
11	1	GB48510	5000/5500 LB OUTER CUP, 3000 LB INNER CUP
12	1	GB48548	5000/5500 LB OUTER CONE, 3000 LB INNER CONE
13	1	BF16S	1" SAE WASHER
14	1	BN16S	1" SLOTTED HEX NUT
15	1	BSC0320	3/16" x 2" COTTER PIN
16	1	GW5112	5000/5500 LB DUST CAP
17	2	GW4000A	4000 LB HUB AND SPINDLE ASSEMBLY
18	2	B0835	1/2 X 3 1/2" BOLT
19	2	BN08L	1/2" NYLOCK NUT NC
20	2	GF1610	1/8" NPT GREASE FITTING
21	2	GBB150125200	1 1/2" x 1 1/4" x 2" LG. HARD BUSHING
22	1	GBB125100075	1 1/4" x 1" x 3/4" LG. HARD BUSHING
23	1	GW5110V	5000 LB V-SEAL KIT
24	1	GW5111V	5000 LB BEARING WITH V-SEAL KIT



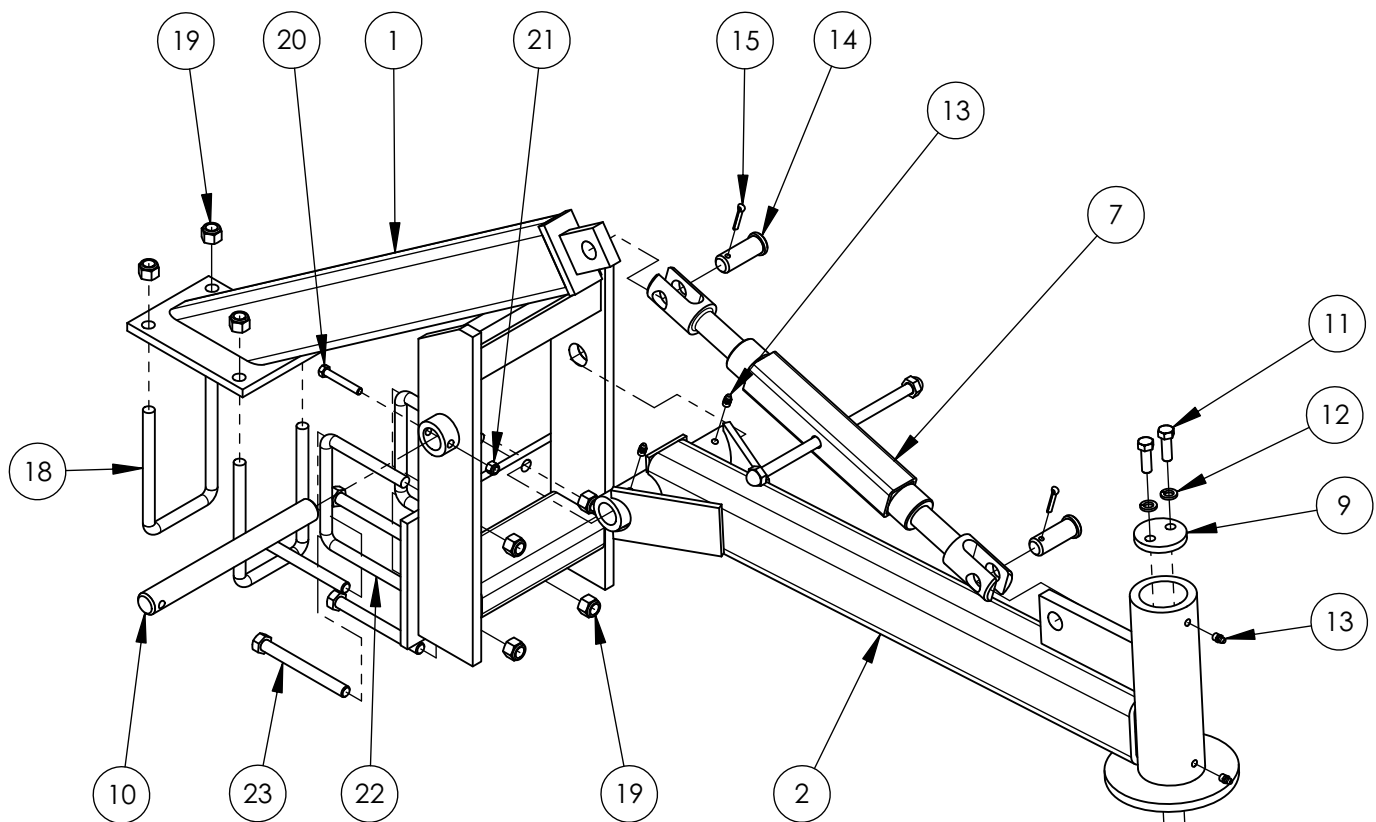
**LH AXLE
ASSEMBLY**



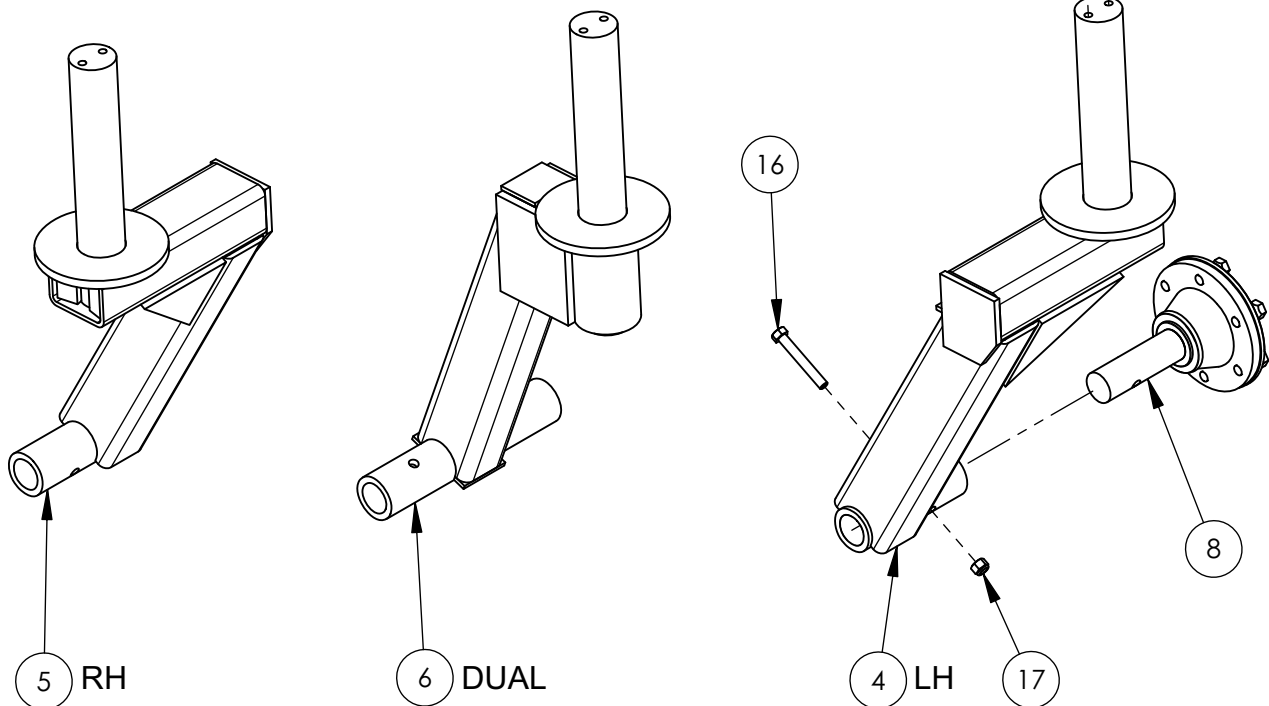
FRONT



**RH AXLE
ASSEMBLY**

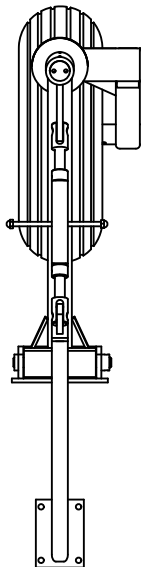


Use u-bolts (22) when straddling welded extension.
Use bolts (23) when straddling bolt-in extension.

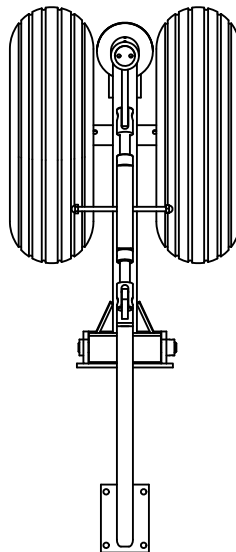


"LAND HUGGER" GAUGE WHEEL ASSEMBLY & PARTS

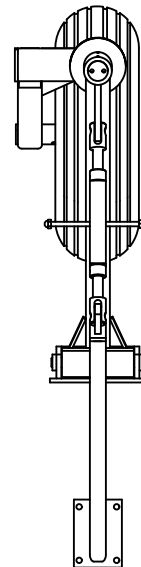
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	C10707	GAUGE WHEEL MOUNT
2	1	C10708	LAND HUGGER GAUGE WHEEL
3	1	T00314	WEAR PLATE
4	1	T00151	WING BOGEY WHEEL - LH
5	1	T00152	WING BOGEY WHEEL - RH
6	1	T00158	A-S MAIN BOGEY WHEEL
7	1	A50010	TURNBUCKLE
8	1	GW4000A	4000 LB HUB AND SPINDLE ASSEMBLY
9	1	FL00037	3/8 X 2 3/4" BOGEY WHEEL CAP
10	1	GP2001214B07	1 1/4 X 12 1/4" 1-HOLE PIN
11	2	B0815	1/2 X 1 1/2" GR. 5 PLATED BOLT
12	2	BL08	1/2" SPRING WASHER
13	4	GF1610	1/8" NPT GREASE FITTING
14	2	GP1600258H04	PIN 1" DIA. x 2 5/8" LG. WITH HEAD
15	2	BSC0415	1/4" x 1 1/2" COTTER PIN
16	1	B0835	1/2 X 3 1/2" BOLT
17	1	BN08L	1/2" NYLOCK NUT NC
18	2	BU1046	U-BOLT 5/8" x 4" x 7 1/2" LG.
19	8	BN10L	5/8" NYLOCK NUT NC
20	1	B0625	3/8"NC x 2 1/2" LG. HEX BOLT
21	1	BN06L	3/8"-16NC LOCK NUT
22	2	BU1061	U-BOLT 5/8" x 6" x 5 1/2"
23	4	B1060	5/8"NC x 6" LG. HEX BOLT



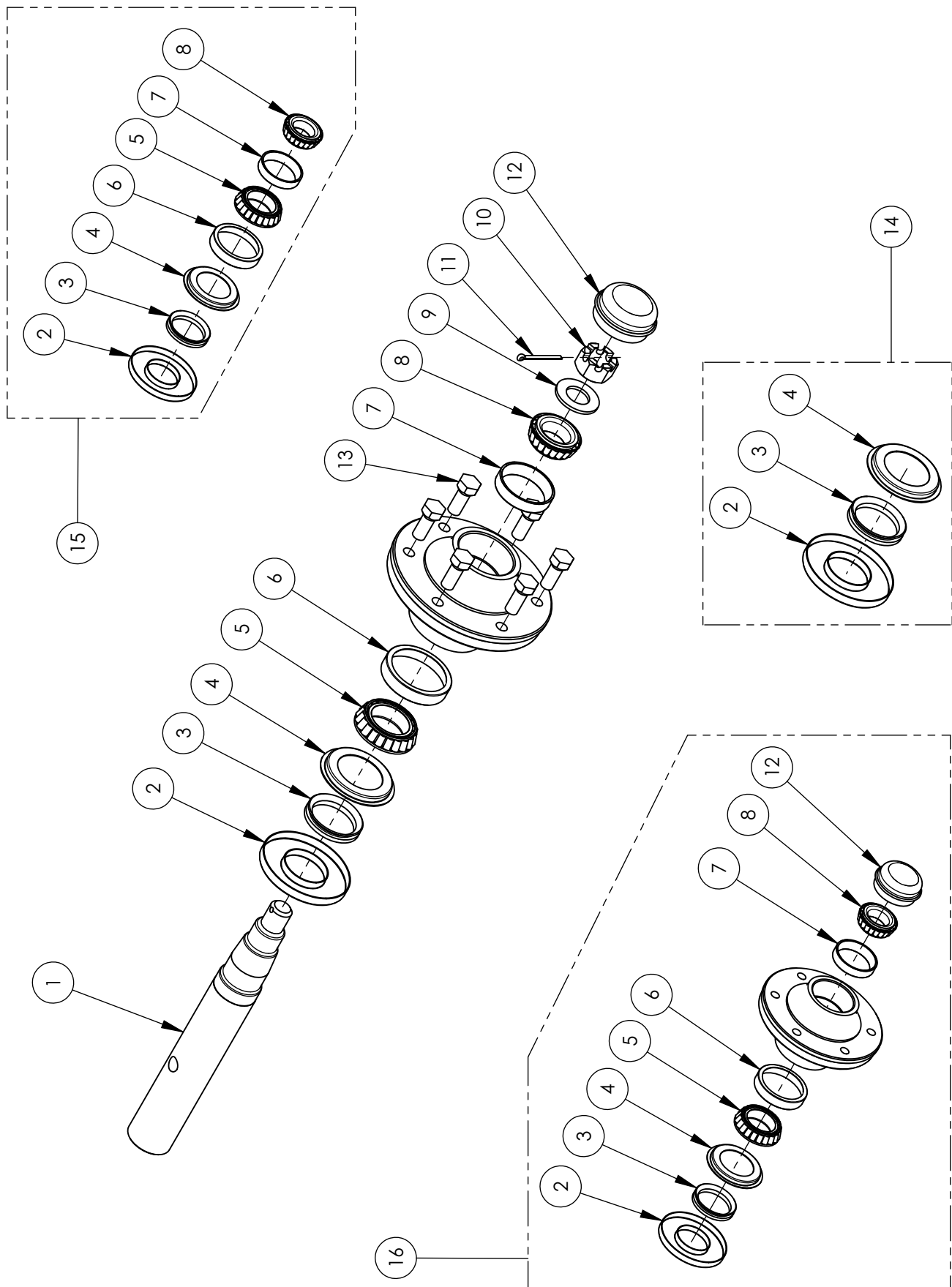
LH GAUGE WHEEL



DUAL GAUGE WHEEL



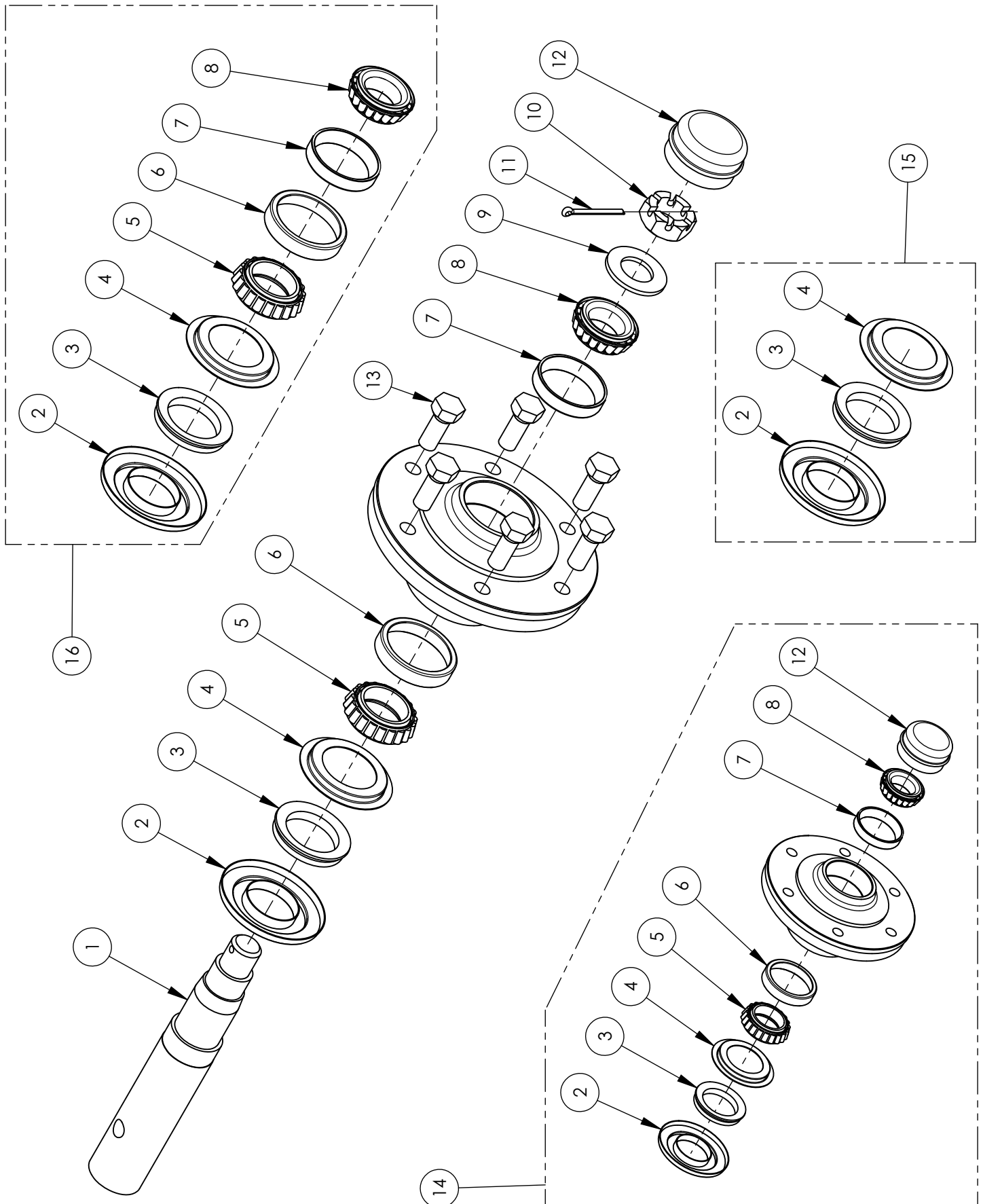
RH GAUGE WHEEL



5000 LB HUB AND SPINDLE ASSEMBLY

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	GW5014	5000 LB SPINDLE-14 IN. LG
2	1	GW5110VW	5000 LB V-SEAL GRASS WRAP GUARD
3	1	GW5110VS	5000 LB V-SEAL
4	1	GW5110VC	5000 LB SEAL COUNTERFACE
5	1	GB603049	5000/5500 LB INNER CONE
6	1	GB603011	5000/5500 LB INNER CUP
7	1	GB48510	5000/5500 LB OUTER CUP, 3000 LB INNER CUP
8	1	GB48548	5000/5500 LB OUTER CONE, 3000 LB INNER CONE
9	1	BF16S	1" SAE WASHER
10	1	BN16S	1" SLOTTED HEX NUT
11	1	BSC0320	3/16" x 2" COTTER PIN
12	1	GW5112	5000/5500 LB DUST CAP
13	6	BW0912	9/16"-18 x 1 1/4" WHEEL BOLT
14	1	GW5110V	5000 LB V-SEAL KIT
15	1	GW5111V	5000 LB BEARING WITH V-SEAL KIT
16	1	GW5000B	5000 LB HUB WITH BEARINGS, SEAL, & DUST CAP

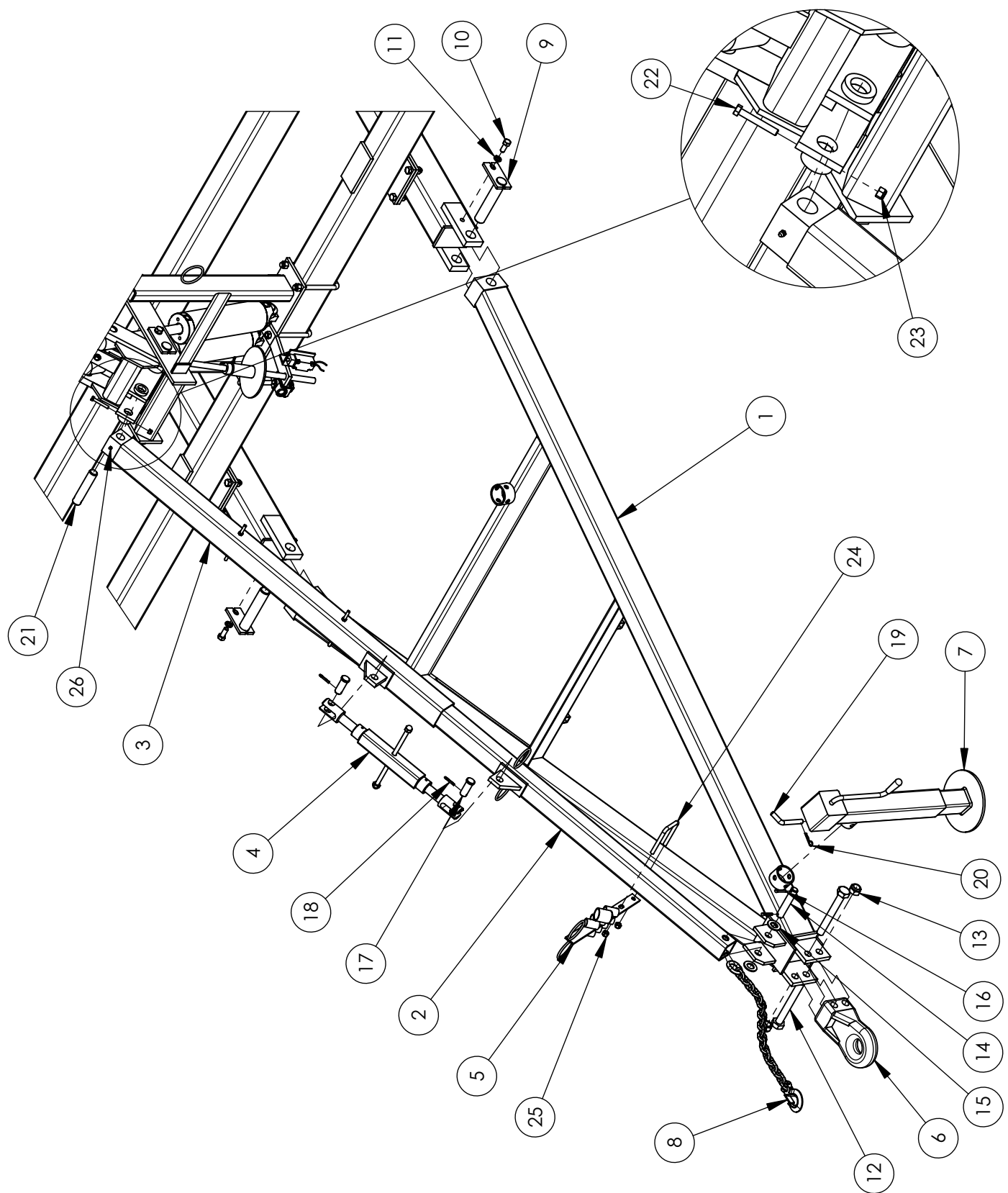
Complete assembly available as part number GW5000A (includes hub, spindle, bearings, seals, dust cap, and hardware).



4000 LB HUB AND SPINDLE ASSEMBLY

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	GW4010	4000 LB SPINDLE - 10" LG.
2	1	GW4110VW	4000 LB GRASS WRAP
3	1	GW4110VS	4000 LB V-SEAL
4	1	GW4110VC	4000 LB SEAL COUNTER FACE
5	1	GB29749	4000 LB INNER CONE
6	1	GB29710	4000 LB INNER CUP
7	1	GB67010	4000 LB OUTER CUP
8	1	GB67049	4000 LB OUTER CONE
9	1	BF16S	1" SAE WASHER
10	1	BN16JS	1" SLOTTED JAM NUT
11	1	BSC0320	3/16" x 2" COTTER PIN
12	1	GW4112	4000 LB DUST CAP
13	6	BW0912	9/16"-18 x 1 1/4" WHEEL BOLT
14	1	GW4000B	4000 LB HUB WITH BEARINGS, SEAL, & DUST CAP
15	1	GW4110V	4000 LB V-SEAL KIT
16	1	GW4111V	4000 LB BEARING WITH V-SEAL KIT

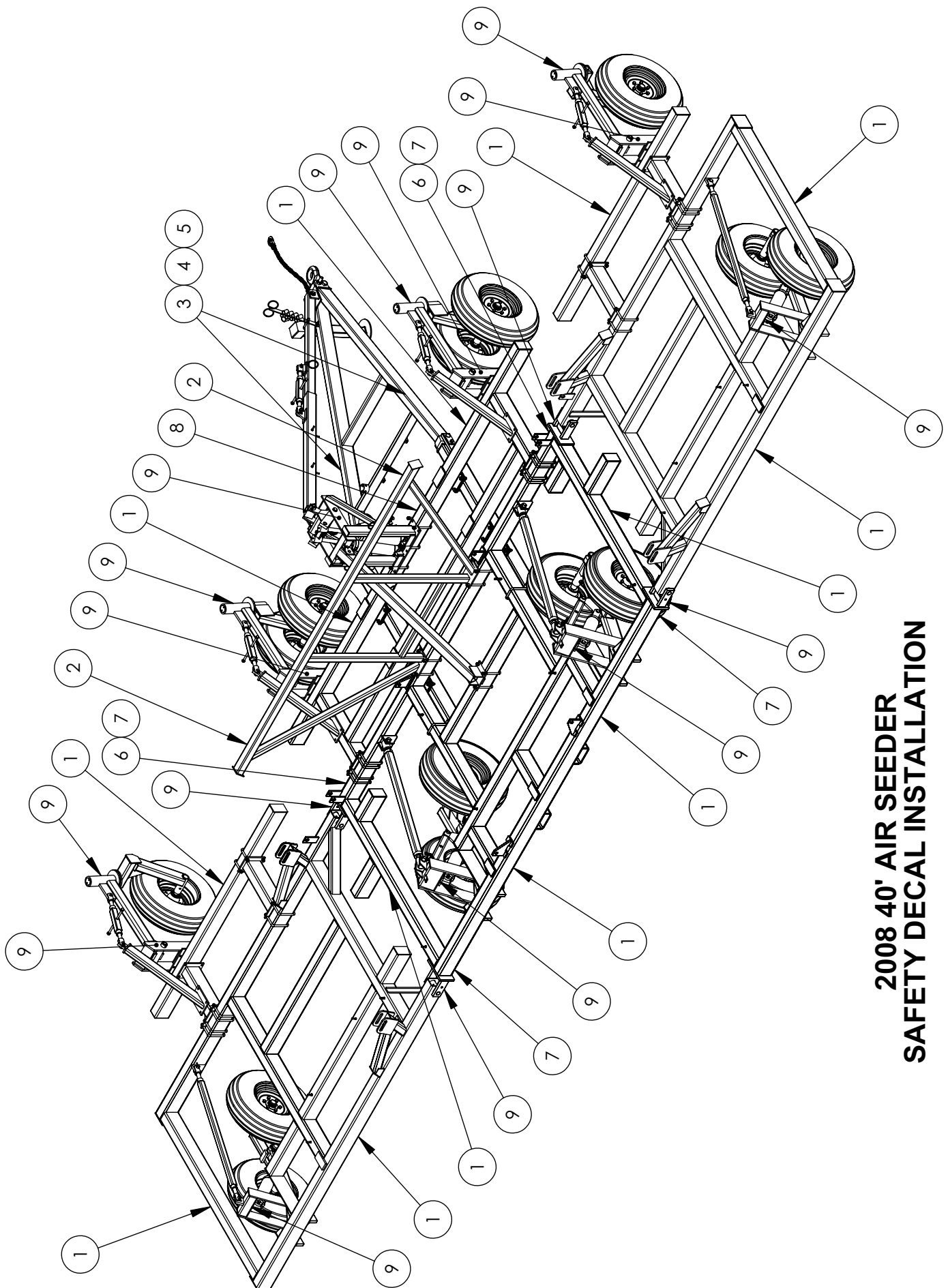
Complete assembly available as part number GW4000A (includes hub, spindle, bearings, seals, dust cap, and hardware).



TONGUE INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	2225C	550-570-580 CAST CLEVIS TONGUE
2	1	A60041	570-580-860-870-9700 INNER TELESCOPE
3	1	A60052	580 OUTER TELESCOPE - 62" TUBE 1 1/4" HOLE
4	1	A50010	TURNBUCKLE
5	1	T00340	AIR SEEDER HOSE HOLDER
6	1	PPI-42XL	CAT 4 CAST IRON HITCH
7	1	GJ8002	8000 LB TONGUE JACK
8	1	GJ652027	20,000 LB SAFETY CHAIN
9	2	GPSPEC24080	1 1/2 X 8" WING HINGE PIN
10	2	B1015	5/8 X 1 1/2" PLATED BOLT
11	2	BF10	5/8" LOCKWASHER
12	2	B1680H	1" x 8" NC HEX BOLT GR. 8
13	2	BN16L	1-8 NC NYLOCK NUT
14	1	GP1600512A05	PIN 1" DIA. x 5 1/2" LG. - 2 HOLES
15	2	BF16S	1" SAE WASHER
16	2	BSC0515	5/16" x 1 1/2" COTTER PIN
17	2	GP1600258H04	PIN 1" DIA. x 2 5/8" LG. WITH HEAD
18	2	BSC0415	1/4" x 1 1/2" COTTER PIN
19	1	GP10004L03	L-PIN 5/8" DIA. x 4" LG.
20	1	GHP11	#11 HAIR PIN
21	1	GP2000614B07	PIN 1 1/4" DIA. x 6 1/4" LG. - 1 HOLE
22	1	B0625	3/8"NC x 2 1/2" LG. HEX BOLT
23	1	BN06L	3/8"-16NC LOCK NUT
24	1	BU0830	1/2" x 3" x 4 1/4" U-BOLT
25	2	BN08L	1/2" NYLOCK NUT NC
26	1	GF641	1/4"-28NF GREASE FITTING

1. Attach tongue (1) to frame assembly using 1 1/2" x 8" flatbar pins (9). Retain pins with 5/8" x 1 1/2" hex bolt (10) and 5/8" lockwasher (11).
2. Insert inner telescope (2) into outer telescope (3). Attach turnbuckle (4) to telescope with 1" x 2 5/8" head pins (17) and 1/4" x 1 1/2" cotter pins (18). Install grease fitting (26) in end of outer telescope.
3. Attach top of telescope assembly to self-levelling assembly with 1 1/4" x 6 1/4" pin (21). Retain pin with 3/8" x 2 1/2" hex bolt (22) and 3/8" locknut (23).
4. Attach bottom of telescope assembly and safety chain (8) to tongue with 1" x 5 1/2" pin (14), 1" SAE washers (15), and 5/16" x 1 1/2" cotter pins (16). Note: pin goes through chain link in centre of tube. Washers go between plate and cotter pin.
5. Install hitch (6) in end of tongue with 1" x 8" Grade 8 hex bolts (12) and 1" lock nuts (13). Insert bolts from opposite sides as shown. Add 1" washers between hitch and mounting plates if any play or clearance exists.
6. Install jack (7) onto tongue with 5/8" x 4" L-pin (19) and #11 hairpin (20).
7. Install hose holder (5) onto telescope approximately 16" from the end of the telescope. Retain hose holder with 1/2" x 3" x 4 1/4" u-bolt (24) and 1/2" locknuts (25).



**2008 40' AIR SEEDER
SAFETY DECAL INSTALLATION**

SAFETY DECAL INSTALLATION



(1) "SALFORD" large – GD100
Place on frame tubes as shown
Quantity – 12



(2) "SALFORD" small – GD101
Both sides of wing rests
Quantity – 4



(3) "www.salfordmachine.com" GD102
Place on tongue
Quantity – 2



(4) "4050" GD4050
On tongue beside (3)
Quantity – 2



(5) "Made in Canada" GD1209
On tongue beside (4)
Quantity – 2



(6) "WARNING" GD110
Main frame front beam at corner
Quantity – 2



(7) "DANGER" GD111
All four corners of main frame
Quantity – 4

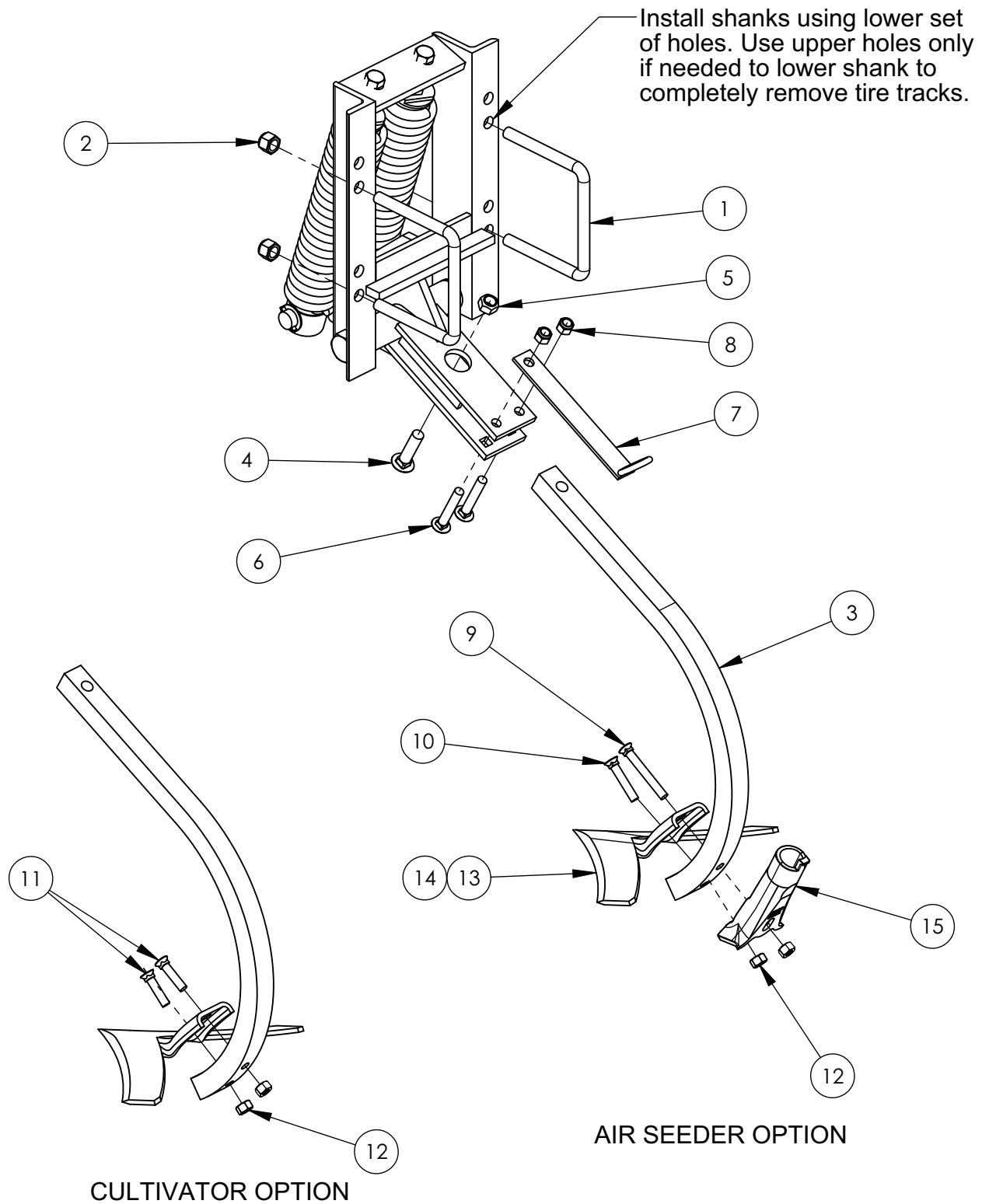


(8) "ATTENTION" GD112
On main frame beside serial number
Quantity – 1



(9) "Grease 10 hours" GD10810
Place near grease fittings in visible spot. Quantity – 17

SHANK ASSEMBLY AND PARTS



SHANK ASSEMBLY AND PARTS

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	BU1061	U-BOLT 5/8" x 6" x 5 1/2"
2	4	BN10L	5/8" NYLOCK NUT NC
3	1	CT5297	C-SHANK: MODIFIED RS5222
4	1	BC1025H	5/8 X 2 1/2" CARRIAGE BOLT GR. 5
5	1	BN10S	5/8" NC STOVER LOCK NUT
6	2	BC0830	1/2 X 3" CARRIAGE BOLT GR. 2
7	1	T00432	1" SHANK HOSE HOLDER
8	2	BN08L	1/2" NYLOCK NUT NC
9	1	BP0735	7/16"-14NC x 3 1/2" PLOW BOLT GR. 5
10	1	BP0722	7/16"-14NC x 2 1/4" PLOW BOLT GR. 5
11	2	BP0720	7/16"-14NC x 2" PLOW BOLT GR. 5
12	2	BN07H	7/16"NC HEAVY HEX NUT
13	1	CT5115	11 1/4" SWEEP
14	1	CT5109	10 1/4" SWEEP
15	1	T00005	SALFORD AIR SEEDER SEED BOOT

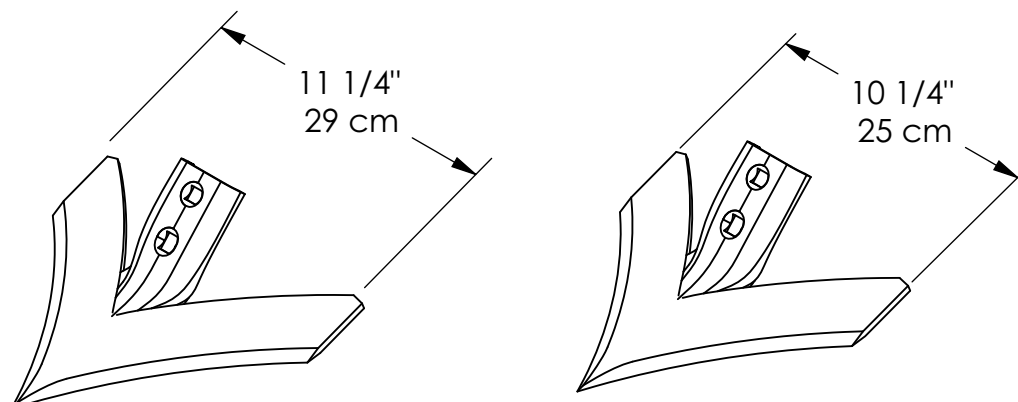
Shank head assembly is preassembled at the factory. See shank head parts drawing for replacement parts for shank head.

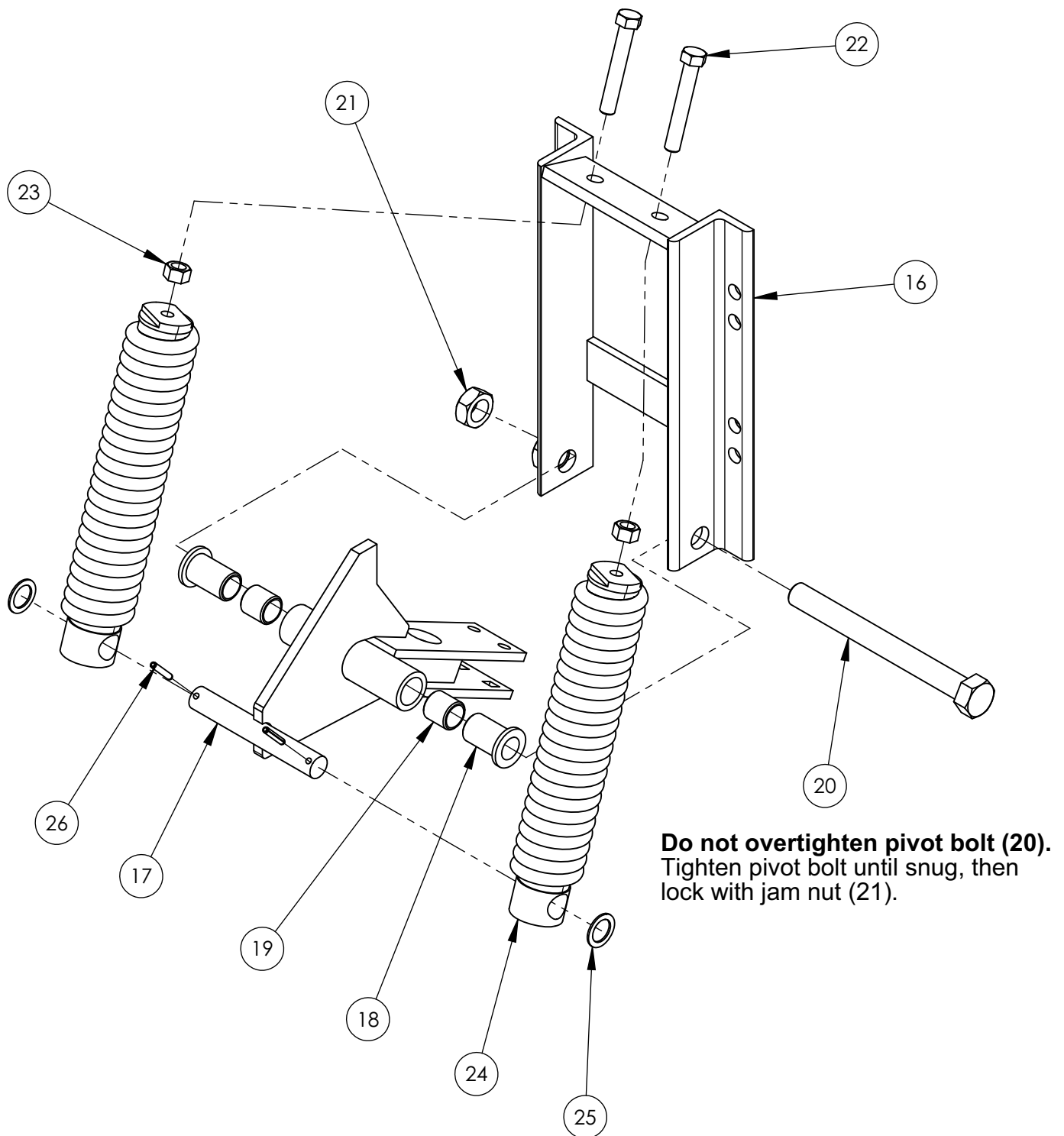
1. Insert shank leaf (3) into shank head. Retain leaf with 5/8" x 2 1/2" carriage bolt (4) and 5/8" crimp nut (5). Place 1/2" x 3" carriage bolts (6) on either side of leaf and retain with 1/2" lock nuts (8). When used as air seeder, place 1" hose holder (7) over one bolt before the lock nut.

2. **Air seeder:** Attach sweep (13 or 14) to front of shank and seed boot (15) to rear of shank with 7/16" x 3 1/2" plow bolt (9) in top hole and 7/16" x 2 1/2" plow bolt (10) and 7/16" heavy hex nuts (12).

Cultivator: Attach sweep (13 or 14) to front of shank with 7/16" x 2" plow bolts (11) and 7/16" heavy hex nuts (12).

3. Mount shanks on frame using 5/8" x 6" x 5 1/2" u-bolts (1) and 5/8" lock nuts (2). See shank layout drawing for shank mounting locations.





SHANK HEAD PARTS

ITEM NO.	QTY.	PART NO.	DESCRIPTION
16	1	C90128	OUTER DOUBLE SPRING C-SHANK WELDMENT
17	1	C90127	INNER C-SHANK WELDMENT
18	2	A60018	NYLATRON SHOULDER BUSHING
19	2	A60017	1 1/4 OD-1 ID X 1 1/4 LONG BUSHING
20	1	B16100	HEX BOLT 1" NC x 10" LG. GR. 5
21	1	BN16J	1"NC JAM NUT
22	2	B1040TH	5/8" X 4" FULL THREAD HEX BOLT GR.5
23	2	BN10J	5/8" NC JAM NUT GR. 5
24	2	GSE0824A	1/2" RESET SPRING 24 TOTAL COILS W/PLUGS
25	2	GM26	1" MACHINE BUSHING
26	2	BSR0415	1/4 X 1 1/2" ROLL PIN

50 SHANKS - 24 cm (9.4") SPACING

dimensions in cm

AIR DISTRIBUTION SYSTEM – 40 ft AIR SEEDER

AIR TOWER INSTALLATION

Mount air towers to frame at locations shown in layout, using provided hardware.



Mount main frame air towers to outermost beams of main frame on extensions provided (see layout). Ensure extension will not contact tire when machine is fully lowered.



Mount wing air towers to middle beams of wing (see layout).

2.5" (64mm) hoses

4 lengths of 2.5" (64 mm) hose are required for 4050 air seeder. Cut and install hoses between bulkhead connection on air tank and air distribution towers on air seeder frame.

See the appropriate section on the following pages for 2.5" hose routing for "tow between" air tanks and "tow behind" air tanks.

2.5" (64mm) Hose Installation

"Tow behind" air tanks -
Mount chain sling hose
holder on rear of tow hitch.



"Tow between" air tanks - Mount
chain sling hose holder on
telescope using 1/2" x 5 1/2" bolts.



Route 2.5" hoses from bulkhead connection on tank to
air towers ("tow behind" shown, "tow between" similar).



Mount 2.5" hose holders
on rear of frame. See
layout for locations.



Leave some loop at wing
joints so hose won't kink
when folding wings.

1" (25mm) hose installation

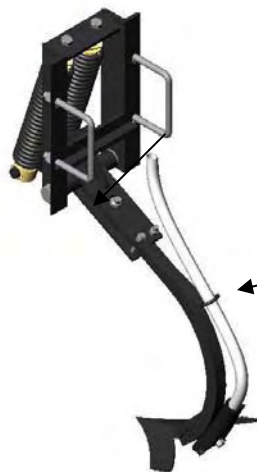
Cut 1" (25 mm) hose to 10' (305 cm) lengths. 50 lengths are required for the 4050 air seeder.



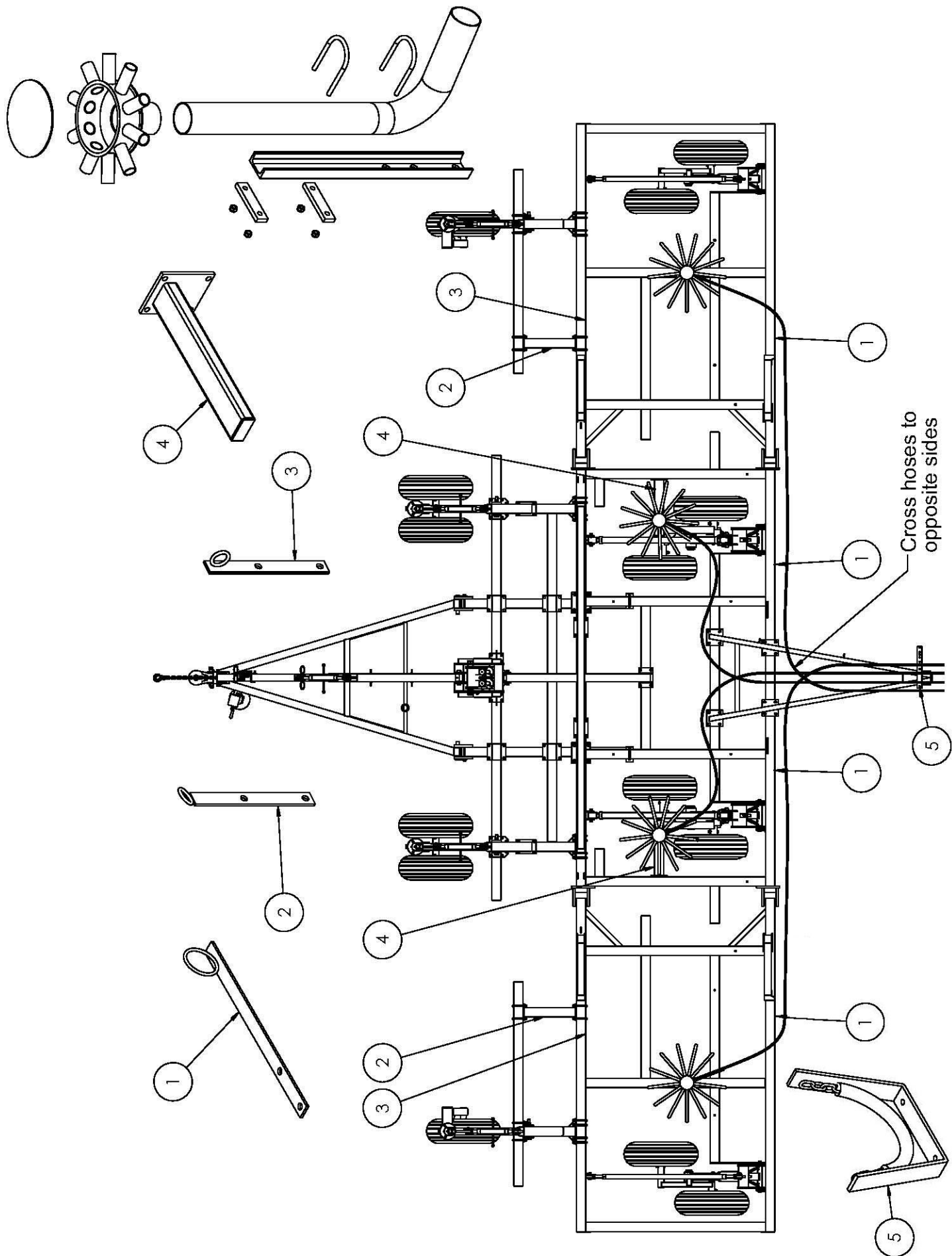
Mount 1" hose holders on front beam of wing and 5th bar extension. See layout for locations.



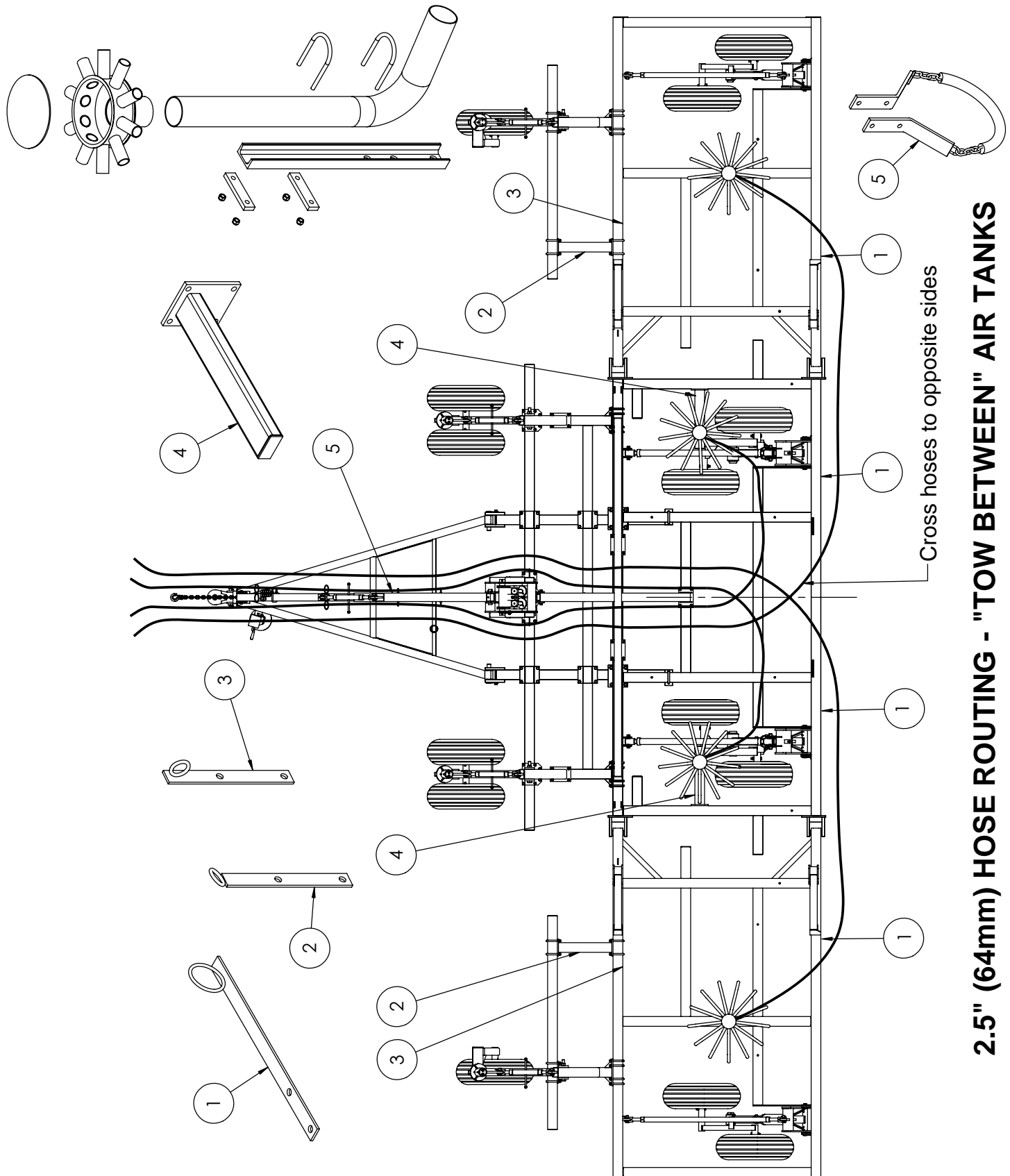
Route hoses without tight corners, kinks, and no droops, hose must flow constantly downwards. Use 1" hose clamps at connection to air towers.



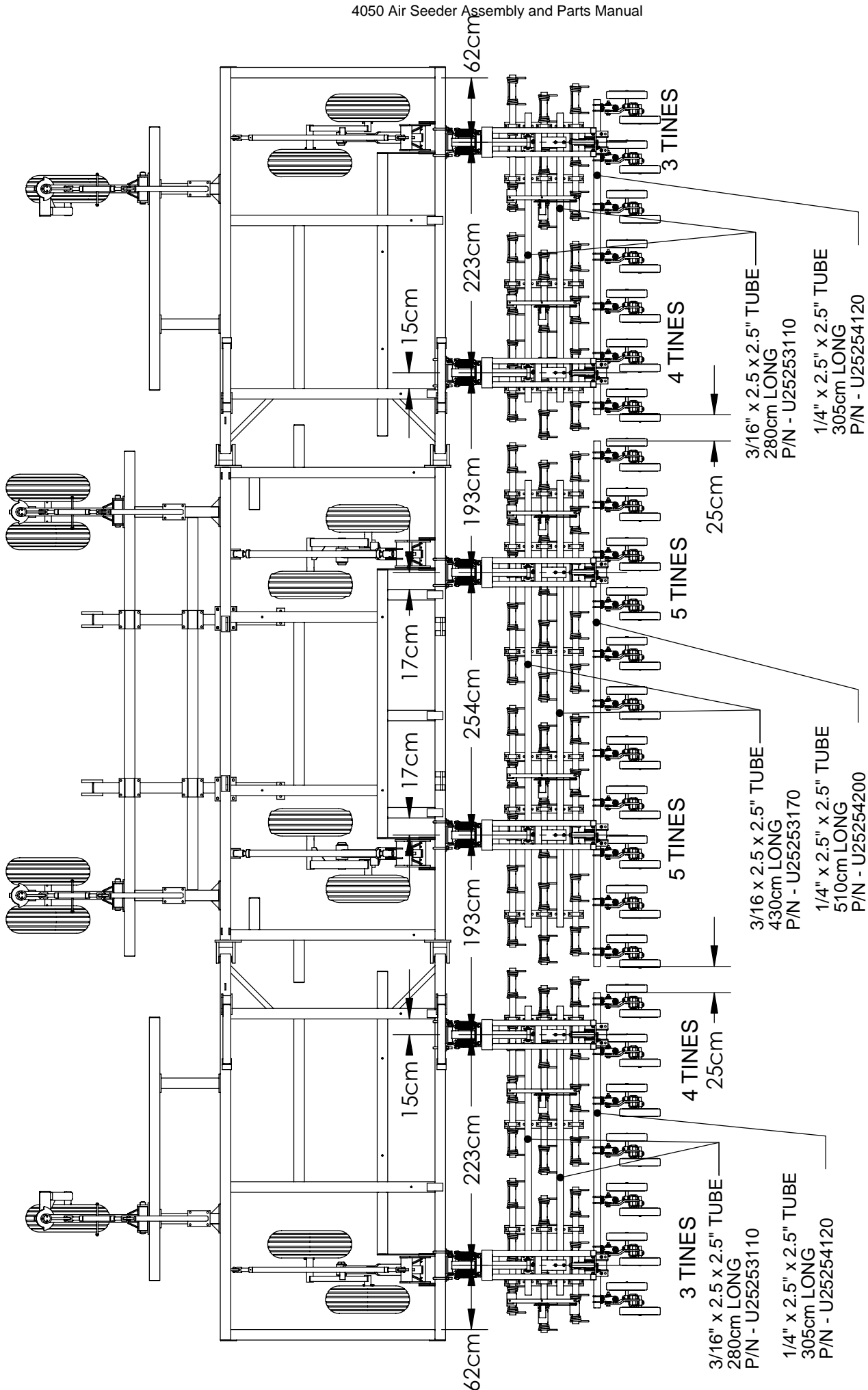
Route hose through holder on rear of shank and into seed boots.



2.5" (64mm) HOSE ROUTING - "TOW BEHIND" AIR TANKS



2.5" (64mm) HOSE ROUTING - "TOW BETWEEN" AIR TANKS

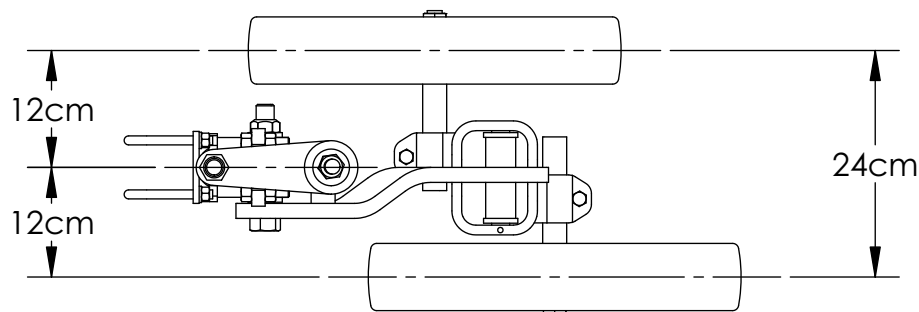


HARROW AND PACKER INSTALLATION

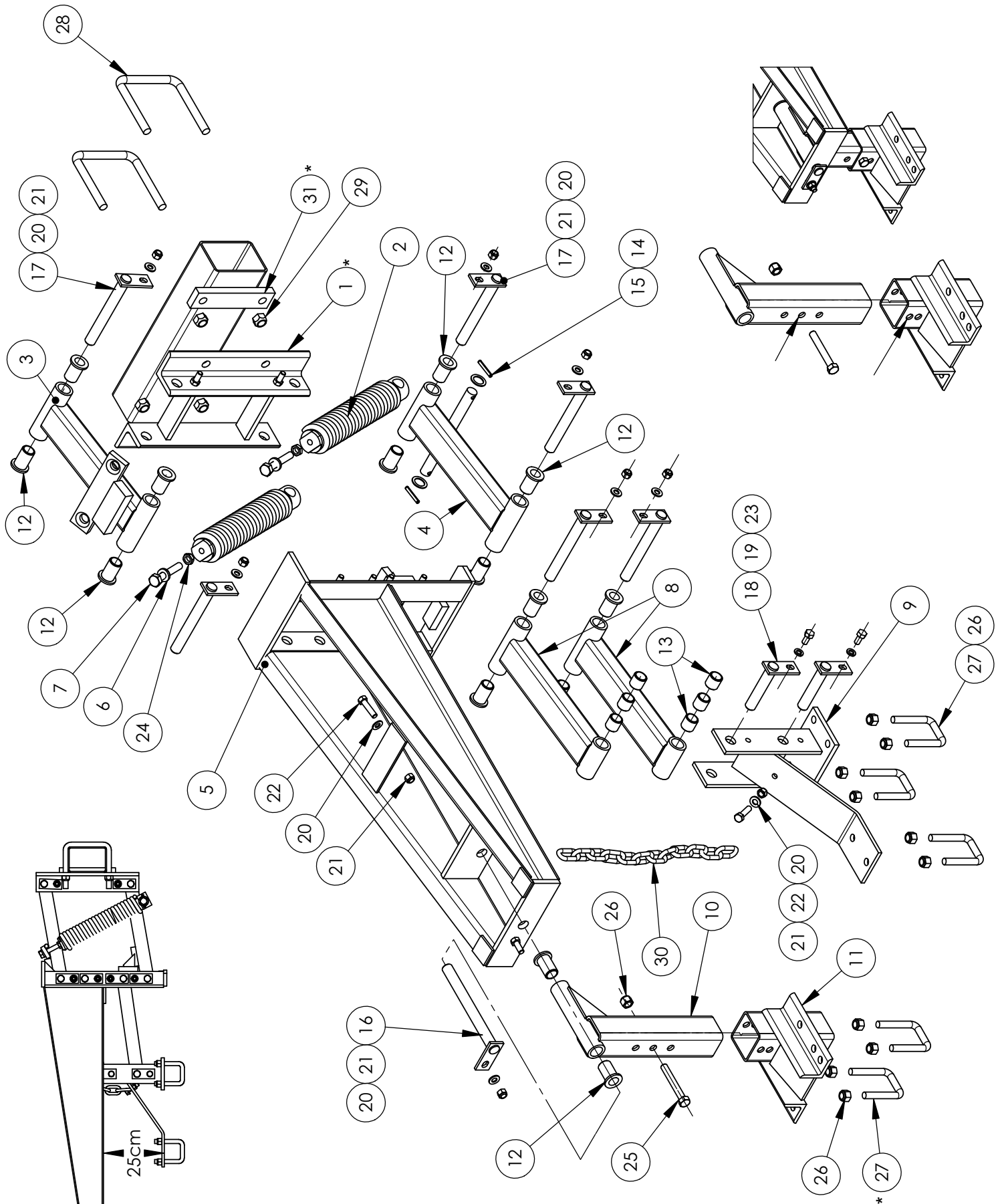
2008 4050 AIR SEEDER

HARROW AND PACKER INSTALLATION

1. Assemble harrow arms and mount on frame at positions shown. Use 3/4" (2cm) spacers between the tube and the mount on the main frame harrow arms.
2. Mount 279cm long tubes to harrow arms on wings (4 tubes), and 432cm long tubes to harrow arms on main frame (2 tubes). Adjust chain in harrow arm so that there is 25cm between the bottom of the harrow arm and the top of the tube.
3. Assemble tine harrow sections and mount to tubes. Space the tines equally across the entire machine before tightening bolts.
4. Mount 305cm long tubes to harrow arms on wings (2 tubes), and 508cm long tube to harrow arms on main frame (1 tube).
5. Assemble packers as shown in drawing. Assemble so that the centreline of each wheel is 12 cm from the pivot centreline (see drawing below). Also install the pivot stop bolts so there is 1cm between the bolt head and the mounting plate.
6. Mount packers to rear tube on harrow arms. Make sure each packer wheel is in line with the shanks.



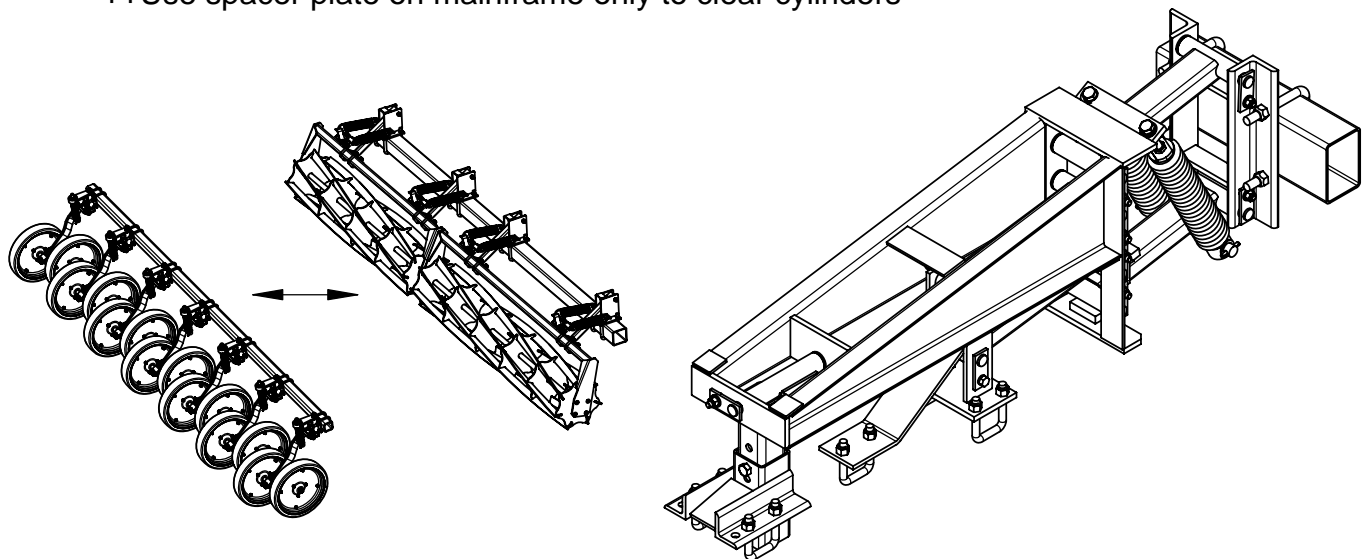
PACKER WHEEL SETUP



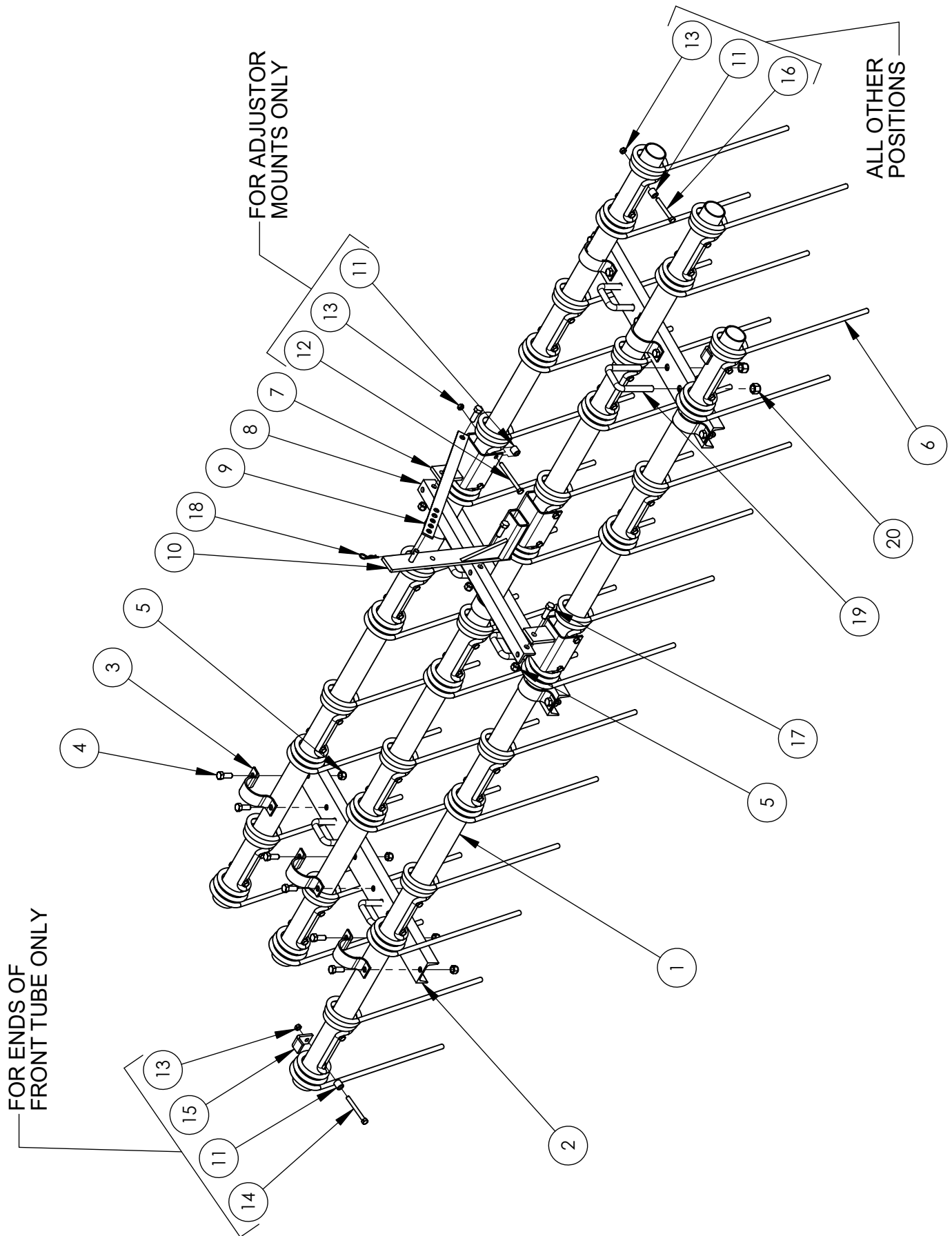
HARROW ARM ASSEMBLY

ITEM NO.	QTY.	PART NO.	DESCRIPTION	
1	1	R80043	A/S MAIN HARROW MOUNT	
2	2	GSE0923A	9/16" X 23 COILS CHROME SPRING ASSEMBLY	
3	1	R80039	A/S MAIN UPPER PARALLEL ARM	
4	1	R80044	A/S LOWER MAIN PARALLEL ARM	
5	1	R80038	A/S HARROW REAR ATTACHMENT HANGER	
6	2	P1160	RESET SPRING BOLT PIVOT WASHER	
7	2	B1040TH	5/8" NC x 4" TAP BOLT GR. 5	
8	2	R80040	A/S TINE HARROW PARALLEL ARM	
9	1	R80042	A/S TINE HARROW BRACKET	
10	1	R80041	INSIDE TELESCOPE A/S REAR HARROW MOUNT	
11	1	R80082	OUTSIDE TELESCOPE. A/S PACKER MOUNT	
12	14	A60018	NYLATRON SHOULDER BUSHING	
13	6	A60017	1 1/4 OD-1 ID X 1 1/4 LONG BUSHING	
14	2	GM26	1" MACHINE BUSHING	
15	2	BSR0520	5/16 x 2" ROLL PIN	
16	1	T00058	PIVOT PIN	
17	6	GPSPEC16085	1" PLATE PIN. 8-1/2" LG	
18	2	GPSPEC16055	1" x 5-1/2" PLATE PIN	
19	2	B0810	1/2" x 1" HEX BOLT	
20	9	BF10HS	1/2" HARD STRUCTURAL FLAT WASHER	
21	9	BN08L	1/2" NYLOCK NUT NC	
22	2	B0820	1/2"NC x 2" LG. HEX BOLT	
23	2	BL08	1/2" SPRING WASHER	
24	2	BN10J	3/4" JAM NUT	
25	1	B1045	5/8 x 4-1/2" BOLT	
26	11	BN10L	5/8" NYLOCK NUT NC	
+	27	5	BU1025	U-BOLT 5/8" x 2 1/2" x 4"
	28	2	BU1260	3/4" x 6 x 6 1/2" U-BOLT
	29	4	BN12S	3/4" STOVER LOCK NUT
	30	1	GCL08	1/2" PASSING LINK CHAIN. 18" LONG
++	31	2	L00648	3/4 x 2 x 8-3/4" SPACER PLATE. MAINFRAME ONLY

+For Rolling Harrows, use 5/8 x 4 x 5-1/2" ubolt (BU1040)
 ++Use spacer plate on mainframe only to clear cylinders



Switch complete gang assembly



1/2" TINE HARROW ASSEMBLIES FOR 2008 AIR SEEDER

1/2" - 3 TINE HARROW ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION
1	R6063	TINE PIPE FOR 1/2" (3-TINE)

1/2" - 4 TINE HARROW ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION
1	R6064	TINE PIPE FOR 1/2" (4-TINE)

1/2" - 5 TINE HARROW ASSEMBLY

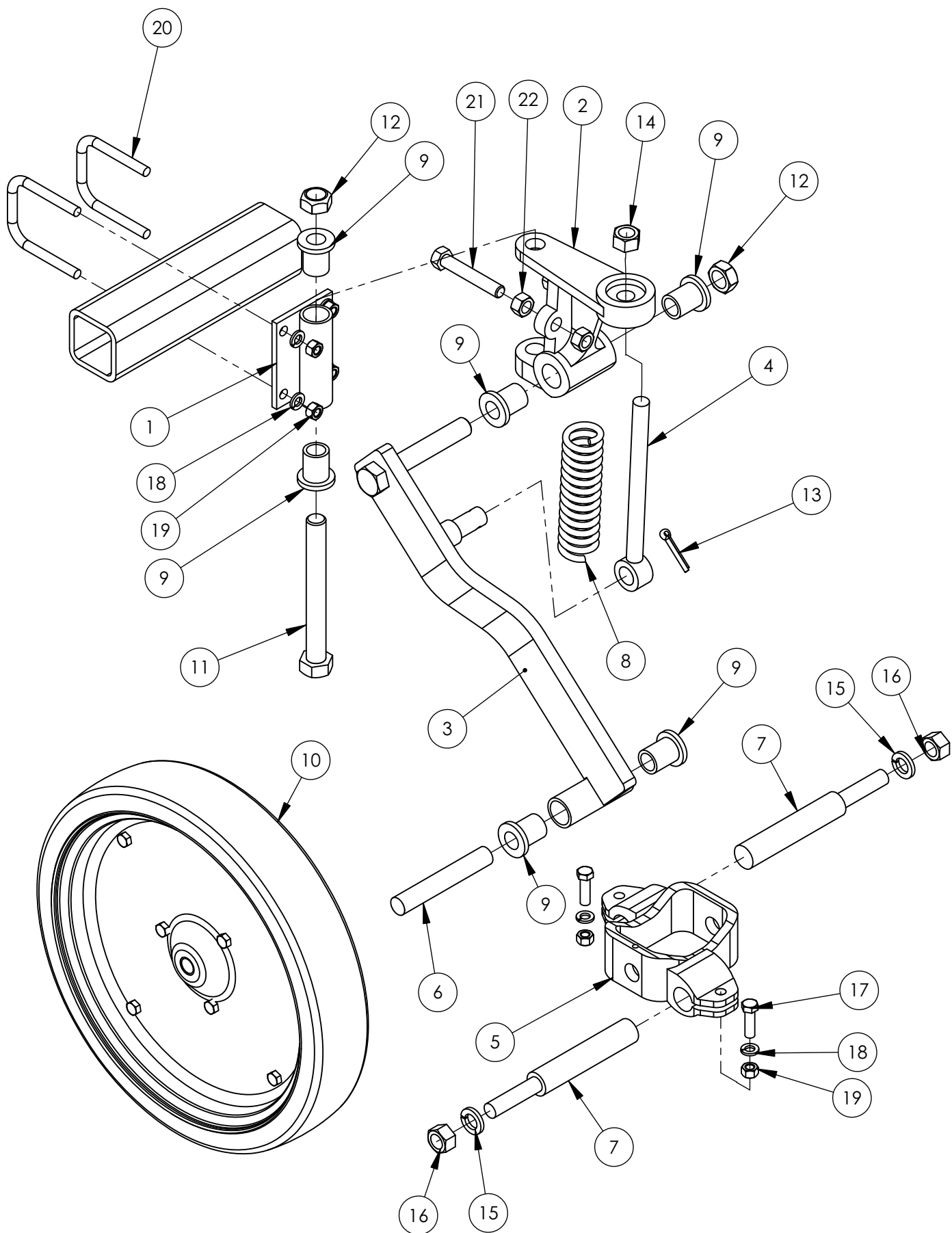
ITEM NO.	PART NO.	DESCRIPTION
1	R6065	TINE PIPE FOR 1/2" (5-TINE)

1/2" - 6 TINE HARROW ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION
1	R6066	TINE PIPE FOR 1/2" (6-TINE)

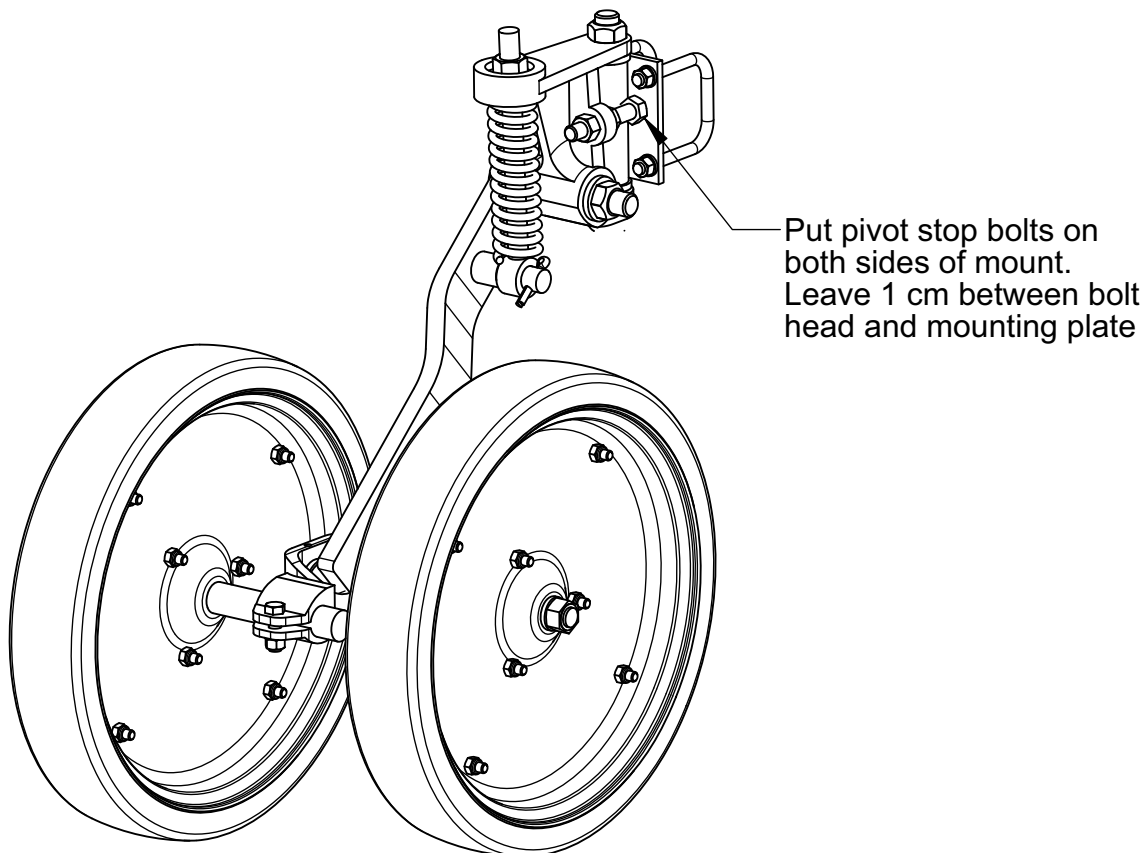
COMMON PARTS

ITEM NO.	PART NO.	DESCRIPTION
2	R30002	1/2" TINE TUBE CONNECTOR
3	R30011	CLAMP BRACKET
4	B0812	1/2 1 1/4" BOLT
5	BN08L	1/2" NYLOCK NUT NC
6	R60000	1/2" WIRE - 20" DBL LEG SPRING TINE
7	R30007	ADJUSTING BRACKET WELDMENT
8	R30005	1/2" TINE 3 BAR ADJUST CONNECTOR
9	R30010	ADJUSTING BAR HD 3 BAR TINE
10	R30008	ADJUSTING BRACKET HANDLE WELDMENT
11	R9063	.75 OD x .438 ID X 3/4 LONG SPACER
12	B0640	3/8"NC x 4" LG. HEX BOLT
13	BN06S	3/8"-16NC STOVER LOCK NUT
14	B0635	3/8"NC x 3 1/2" LG. HEX BOLT
15	R30015	LIGHT SAVER BRACKET
16	B0630	3/8"NC x 3" HEX BOLT
17	B0815	1/2" x 1 1/2" HEX BOLT
18	GHP11	#11 HAIR PIN
19	BU1025	U-BOLT 5/8" x 2 1/2" x 4"
20	BN10L	5/8" NYLOCK NUT NC

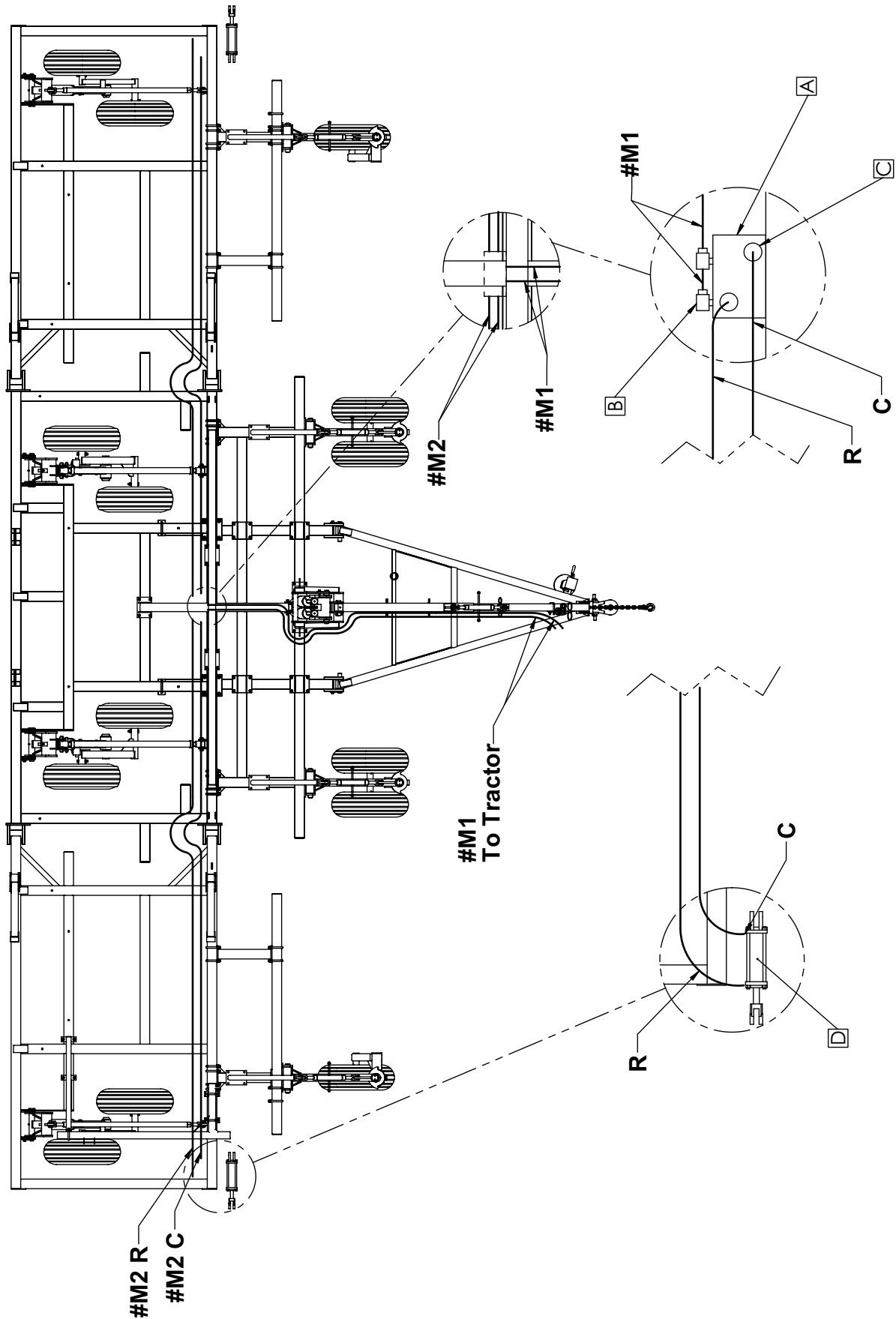


PACKER ASSEMBLY

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	T00411A	PIVOT MOUNT
2	1	T00411B	SWIVEL BRACKET
3	1	T00411C	PACKER LEG
4	1	T00411D	SPRING ROD
5	1	T00411E	TANDEM MOUNT
6	1	T00411F	TANDEM AXLE
7	2	T00411G	PACKER AXLE
8	1	T00411H	SPRING
9	6	T00411J	BUSHING 3/4
10	2	T00411K	K-HART 3 x 16" PACKER WHEEL
11	1	B1265	3/4"NC x 6 1/2" LG. HEX BOLT GR. 5
12	2	BN12S	3/4" UNC STOVER LOCK NUT GR. 8
13	1	BSC0415	1/4" x 1 1/2" COTTER PIN
14	1	BN10L	5/8" NC HEX NUT
15	2	BL10	5/8" LOCKWASHER
16	2	BN10	5/8" NC HEX NUT GR.5
17	2	B0612	3/8" X 1 1/4" LG. BOLT GR.5
18	6	BL06	3/8" LOCK WASHER
19	6	BN06	3/8 " LOCKNUT
20	2	BU0825	1/2 x 2-1/2 x 3 1/2" UBOLT
21	2	B0830	1/2"NC x 3" HEX BOLT
22	4	BN08	1/2" HEX NUT NC



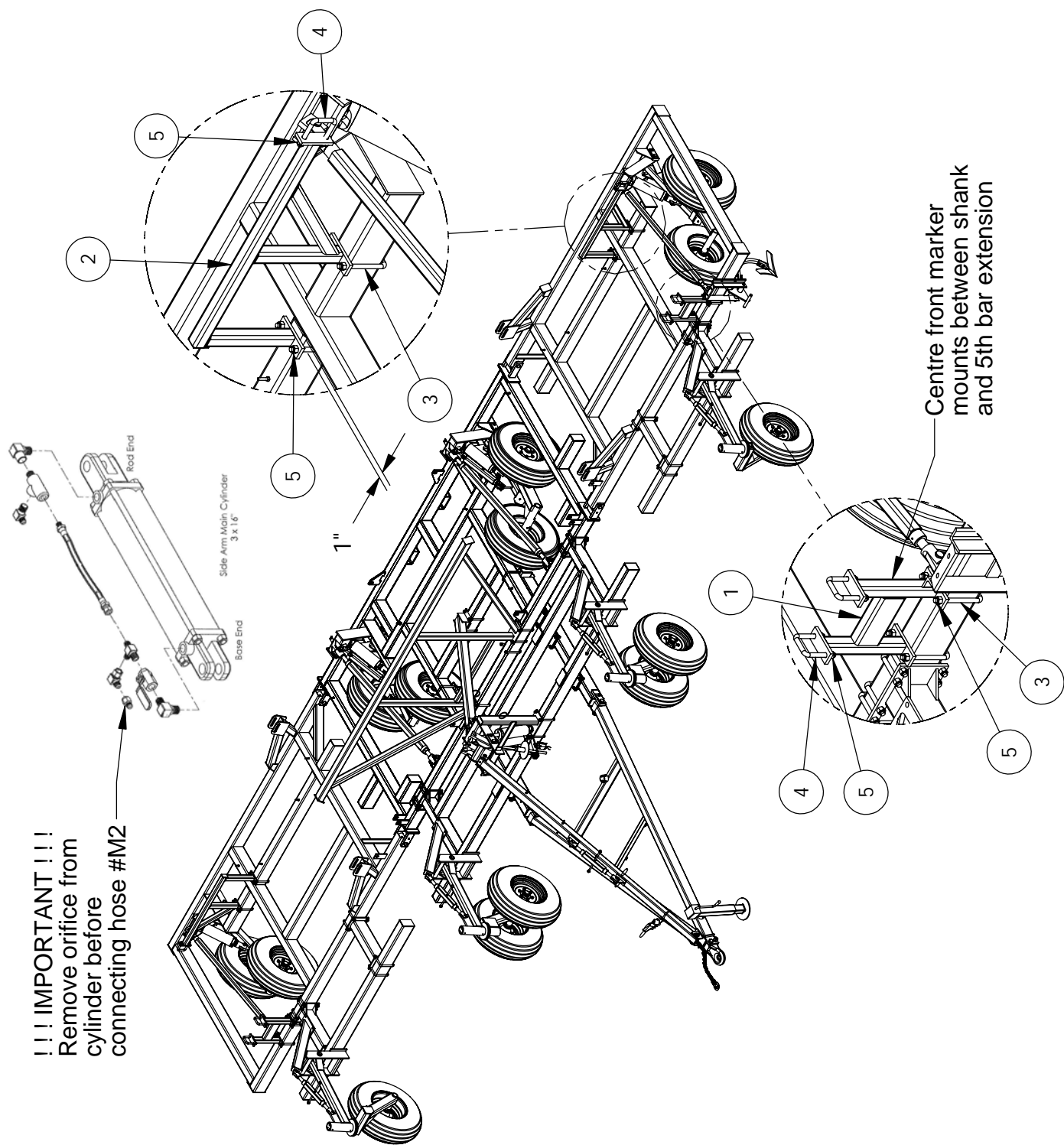
MARKER HYDRAULIC LAYOUT



MARKER HYDRAULICS

LABEL	QTY	LENGTH (m)	ENDS
#M1	2	6.3	1/2"NPT --- -06jic
#M2	4	7.0	-06jic --- -06jic

ITEM	QTY	PART NO.	DESCRIPTION
A	1	T00353	HAUKAAS SEQUENCING VALVE
B	2	T00025A	ELBOW - 1/2"ORB x 9/16" JIC
C	4	T00025B	SPECIAL C Fitting x 9/16" JIC (HYD 2481)
D	2	T00025C	SIDE ARM CYLINDER (3 x 16")



MARKER INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	T00063	FRONT MARKER SUPPORT
2	2	T00064	REAR MARKER SUPPORT
3	9	BU1046	U-BOLT 5/8" x 4" x 7 1/2" LG.
4	6	BU1030	U-BOLT 5/8" x 3" x 4 1/2"
5	30	BN10L	5/8" NYLOCK NUT NC
6	2	H80104P	1/2" NPT MALE PIONEER COUPLER

HOSE #	QTY.	LENGTH (m)	FROM	TO
M1	2	6.3	TRACTOR	SEQUENCING VALVE
M2	4	6.6	SEQUENCING VALVE	MARKER CYLINDERS

1. Install front marker mounts (1) on front beam of wings. Centre mounts between shank and 5th bar extensions as shown. Retain mount with 5/8" x 4" x 7 1/2" u-bolts (3) and 5/8" locknuts (5).
 2. Install rear marker mounts (2) on stub beam of wings so there is 1" between inner mounting plate and middle wing tube. Retain mount with 5/8" x 4" x 7 1/2" u-bolts (3) and 5/8" locknuts (5).
 3. Assemble markers following instructions in Haukaas manual. Note that markers are distinguished by an "L" and "R" on the serial number tag for left and right markers. Attach markers to mounts with 5/8" x 3" x 4 1/2" u-bolts (4) and 5/8" locknuts (5).
 4. Mount sequencing valve and bracket to the middle of the main frame front beam with 5/8" x 4" x 7 1/2" u-bolt (3) and 5/8" locknuts (5).
 5. Route hoses #M1 from tractor to sequencing valve. Connect hoses to sequencing valve as instructed in Haukaas manual. Place male Pioneer couplers (6) on hose ends. Place 2 blue tie wrap on end of marker extend hose and 1 blue tie wrap on marker retract hose for easy identification when connecting hoses to tractor.
 6. Route hoses #M2 from sequencing valve to marker cylinders. Connect hoses to sequencing valve as instructed in Haukaas manual. Route hoses along front beam of main frame and wing, and tie wrap hoses to shank u-bolts.
- !!! IMPORTANT !!!** Remove orifice from base ends of marker lift cylinders before connecting #M2 hoses.
7. Test markers and make any necessary adjustments following the instructions in the Haukaas manual.

WARNING: Do not test the markers inside a building. They fold out approximately 20' to the side or up if machine is folded.

Wait until you move the air seeder outside to an open area before testing.

Watch out for overhead power lines.

8. After the markers are mounted tighten all U-bolts securely. If the U-bolts are not tight the marker will want to whip when being used in the field. After the first 20 hours of use, retighten all U-bolts.

9. Attach the disc assembly to the **BOTTOM SIDE** of the third stage arm with the disc guard on top using the $\frac{1}{2}$ x 1- $\frac{3}{4}$ " carriage bolts.

On certain implements the disc blade may come in contact with parts on the drill when the marker is folded in. This can be overcome in most cases by removing the third stage arm, flipping it over and reinstalling it. The bracket welded on the end of the third stage arm has an offset which allows for some adjustment.

The angle of the disc blade can be adjusted by loosening the $\frac{1}{2}$ " carriage bolts. Adjust the disc angle to the degree that a legible mark is made and that there is just enough resistance to keep the marker from bouncing back and forth.

10. Remove steel band from marker!! Failure to do so will cause damage!

Route the hydraulic hoses and install sequencing valve (if required) at this time. The sequencing valve should be located in the approximate location of where the left side of the implements hitch attaches to its centre frame. In the hose package, information is given as to which hoses go where.

11. IMPORTANT: Before extending marker...

MAKE SURE that all moving parts of the implement have **adequate travel space** with the implement both in the ground and raised out of the ground. It is also important at this time to make sure that the marker clears all obstructions (shanks, hoses, etc.) when the marker is folded in and extended out. **Have someone watching!**

12. Extend the marker.

13. Loosen the set screws on the second stage arm (2- $\frac{1}{2}$ x2- $\frac{1}{2}$ " tube) and extend the third stage arm (2x2" tube) out to its proper length.

NOTE: We recommend that the excess 2x2" tube which is not being used, (behind the last set screw) be cut off to reduce the weight of the marker.

NOTE: On some Model 136 markers going on smaller width implements you will be required to cut at least 24" off the inside end of the third stage arm in order to make the marker go small enough.

When re-tightening the set screws make sure the third stage arm is properly seated inside the second stage arm. (After the first day of use re-tighten)

14. With the marker extended out to its proper length place a bathroom scale under the disc. By adjusting the eye bolts on the counter balance springs, place about 50 lbs of weight on the disc. (This is a good place to start. You may want, in some conditions, to increase the weight to get a better mark.)

15. IMPORTANT! Retract the marker slowly!

Adjust the second stage arm so that it fits to the high side of the cradle (in between the 3" wheels) when it is folded in. To make an adjustment loosen the ½" carriage bolts at the elbow and "over lift" the arm up to about the center of the top wheel. Re-tighten the carriage bolts. The second stage arm should drop down to fit in between the (2) 3" wheels.

16. Fold up the implement. **Have someone watching!** Take great care in folding up your implement into transport for the first time. Make sure the markers do not come in contact with any obstructions or with each other. We suggest that for the first time folding into transport only bring up one wing at a time.

Do everything SLOWLY! If you have a five section implement watch out for your manifold towers. You may want to block the wing the first time you fold just to make sure that you will have enough clearance. Some five fold implements have what we call "the point of no return" when folding for transport. It is at this point when the wing lift cylinders stop pulling and start pushing and unless you are careful the wing may continue to fold without you being able to stop it.

When one wing is fully folded have a look to make sure that none of the marker is past the half way mark. If everything looks good then fold the implement into transport.

17. When the markers are completely mounted check all bolts for being tight.

ADJUSTMENT INFORMATION

NOTE: It is important that all of the adjustments on the marker are maintained at all times. The adjustments are as follows.

1. The speed of the markers as noted below.
2. The cable tension as noted below.
3. The second stage arm must ride high in between the 3" wheels. To adjust there are 4 or 8 bolts at the elbow where the second stage arm attaches to the sprocket assembly.
4. The single 3" wheel on the large tapered tube must ride high and inside its cage on the marker sub-frame. To adjust height there are 4 bolts where the main frame attaches to the sub-frame. To bring the wheel farther into the cage the 4 bolts where the

sub-frame. (see pg. 12.) To bring the wheel farther into the cage the 4 bolts where the cylinder attaches to the main frame will need to be adjusted. (see pg. 11.)

5. The weight of the marker on the disc blade can be adjusted with the eye bolts attached to the springs. 50 lbs is a good place to start.

MARKER FOLDING SPEED

The speed of the markers folding in and out not only effect the cables but also everything else with the markers. If when folding the markers in, the second stage arm hits the rubber bumper on the large tapered tube so hard that it bounces back out of the 3" wheels before finally coming into position, the markers are moving too fast. We recommend 10 to 12 seconds to fold the markers in on our models 136, 246, 286.

The speed of the marker is regulated by an orifice fitting located on the elbow at the base port end of the cylinder. To speed up the markers you can turn the oil flow from the tractor up, or drill out the orifice to 1/16". If a Shoemaker Sequencing valve (gold in colour) is being used the orifices are to be removed and the speed of the marker is to be regulated by the flow screws on the valve.

CABLES (See pg. 12.)

After a period of time the cables on the SIDE ARM will stretch and require adjustment. Inside each marker there are two cables. When the marker is folded up the cable on the inside towards the implement is referred to as the inside cable. The other cable is referred to as the outside cable. It is normal when the marker is completely extended or retracted to have one cable inside the tube tight and the other cable somewhat relaxed. A cable should never be so loose that it could fall out of the groove of the large pulley.

The purpose of the inside cable is to extend and hold out the second stage arm when the marker is folding out. If you have problems with the 5/16 x 2" shear bolt breaking on this cable, it could be one of four things:

- 1) Markers extending too fast
- 2) The inside cable is being tightened to tight
- 3) Cable is too loose allowing marker to bounce back and forth
- 4) Backing the implement up with the marker extended.

To check for proper tension on the inside cable do the following. With the tractor hydraulics, extend the marker fully. By hand, pull the disc assembly forward. By doing this you will open a gap between the angle iron assembly of the second stage arm and the back stop on the large tapered tube. It will depend on the length of your marker how much force will be required to open the gap. However, in general terms it should take effort on your part to open the gap. If the inside cable is too tight the shear bolt will let go. (Stand clear of cable ends).

To tighten the inside cable you will have to retract the marker. Only in this position will the inside cable become loose enough to adjust. Extend the marker and check again. If the inside cable is too loose the marker disc may bounce back and forth while marking.

The outside cables purpose is to retract and hold the second stage arm against the rubber bumper. If you have problems with the 5/16 x 2" shear bolt on this cable, breaking, it is probably one of following things:

- 1) Markers retracting too fast
- 2) The outside cable is being over-tightened
- 3) Can be the result of the hydraulic cylinder retracting prematurely or not having the marker fully extended while marking in the field.
- 4) Stopping the marker as it is folding out and folding it back in a severe motion.
- 5) Too much weight on the disc blade may cause shear bolts to break when beginning to fold markers up.
- 6) The half-link plates that attach the cable to roller chain may over time oblong their 5/16" holes resulting in only one end of the shear bolt holding.

To check for proper tension on the outside cable; with the tractor hydraulics, retract the marker fully. Grab the second stage arm of the marker near the two 3" wheels. Begin to pull the arm out of its holder. Depending on the size of marker, with proper adjustment this should take 30-40lbs of pressure to achieve. If the outside cable is too tight the shear bolt will let go. (Stand clear of cable ends).

When Cables have had to be replaced for any reason follow the following steps for proper adjustment:

Step #1:

- a) Begin adjustments with marker in the retracted position.
- b) Place marked tooth of sprocket between 2nd & 3rd roller of the #80 roller chain.
- c) Place both cable adjusting bolts in the holder.
- d) Tighten the outside cable bolt finger tight.
- e) Tighten inside cable adjusting bolt until 2nd stage arm pulls away from rubber bumper.
- f) Extend marker and tighten outside cable bolt finger tight.

Step #2:

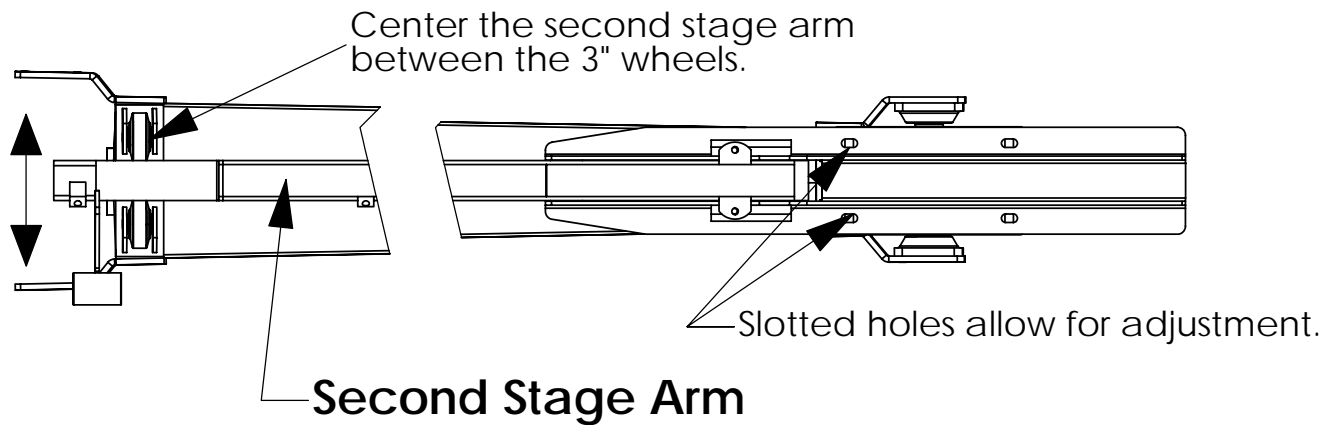
- a) Retract the marker; it should take approximately 30 lbs of pull to move the 2nd stage arm away from the rubber bumper. To adjust: extend marker part way out (until cable is loose) and adjust the outside cable bolt. Recheck.
- b) Extend marker SLOWLY! At the exact moment the rear of the 2nd stage arm touches the stop on the large tube, make a mark on the ground at the location of the disc. When the hydraulic cylinder is fully extended the disc should still move another 12 to 14 inches ahead of that mark.

To adjust: retract marker part way in (until cable is loose) and adjust the inside cable bolt. Recheck.

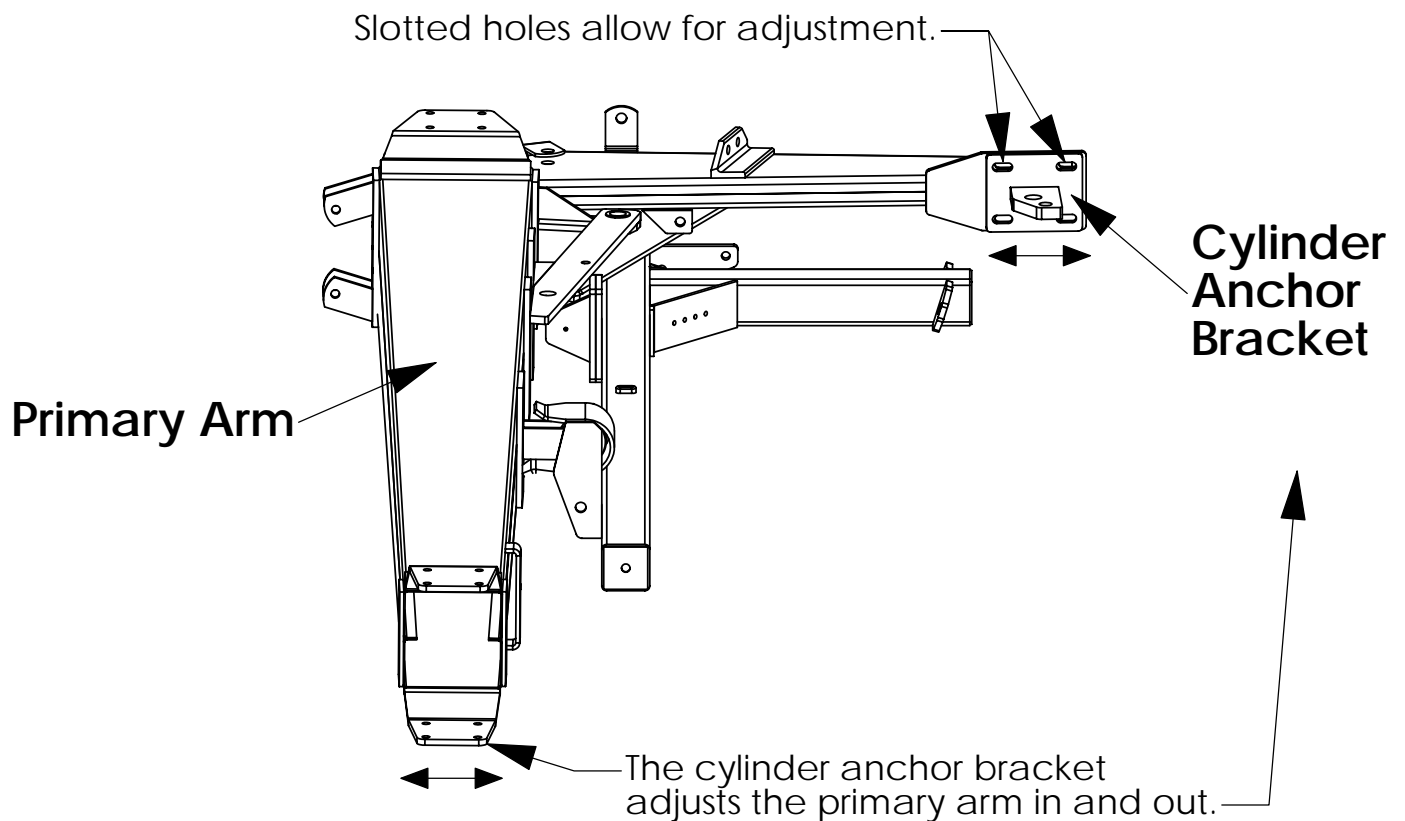
NOTE: Step #2 will have to be repeated a few times.

When the cable adjustments are completed one cable will be tight while the other may be somewhat loose (and vice versa). This is normal.

Second Stage Arm Height Adjustment

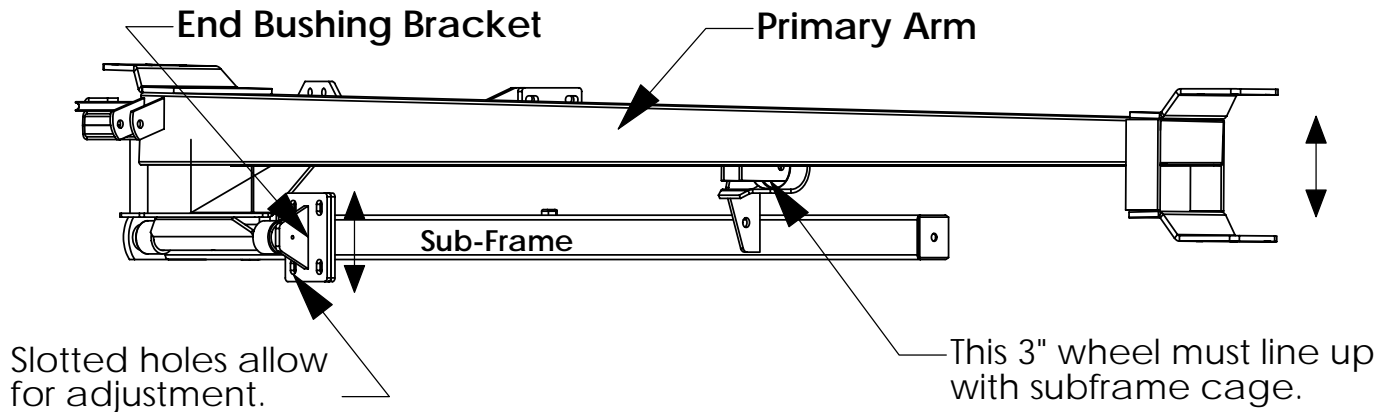


Primary Arm In and Out Adjustment

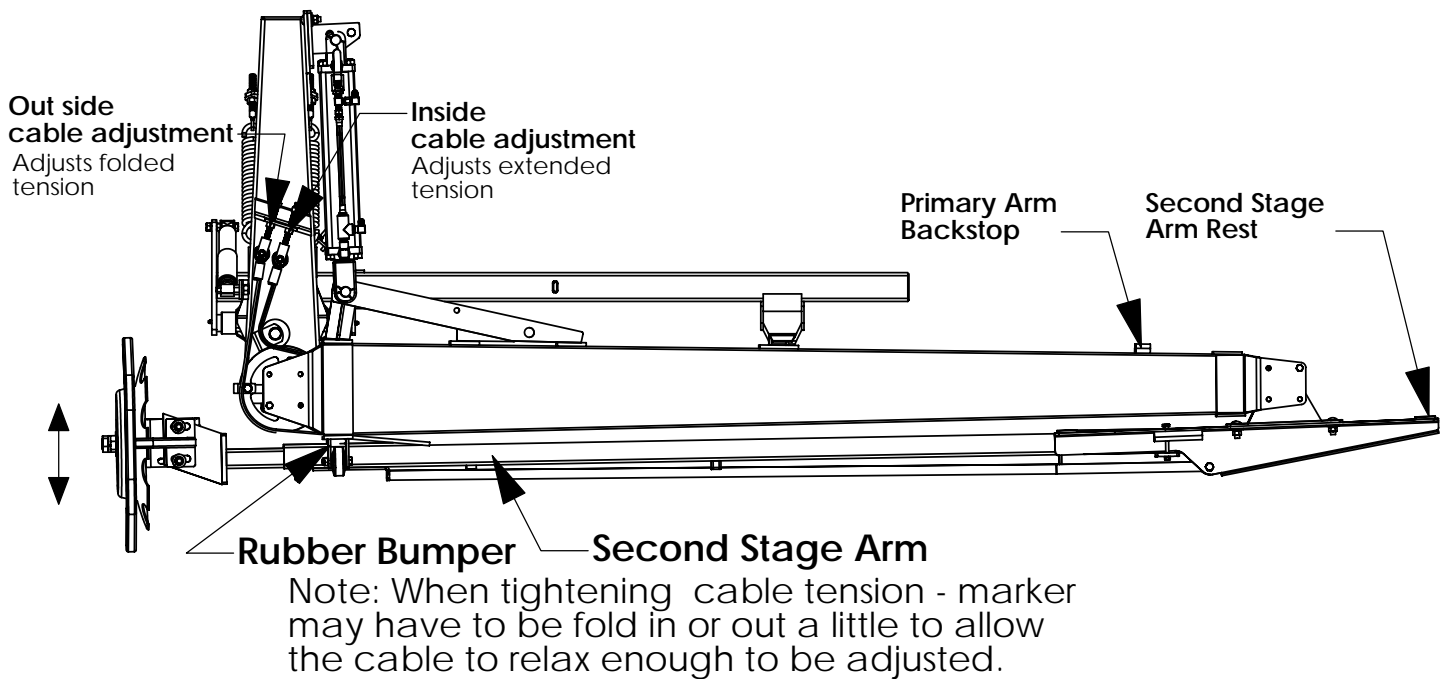


It is VERY IMPORTANT that the primary arm's 3" wheel is held in the wheel cage when folded in. If for some reason this comes out of adjustment Fix Immediately!

Primary Arm Up and Down Adjustment

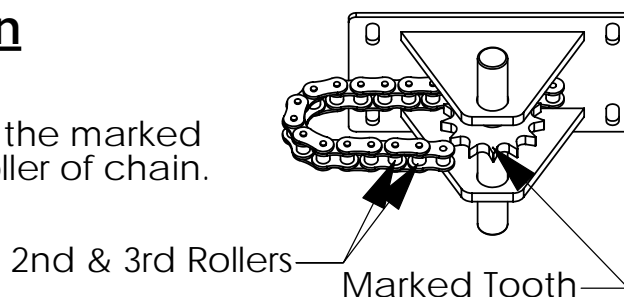


Cable Adjustments



Timing Roller Chain

With the marker folded - place the marked tooth between the 2nd & 3rd roller of chain.



OPERATING PROCEDURES

1. Read all decals affixed to the marker before operating.
2. The HAUKAAS SIDE ARM comes with its own hydraulic oil flow shut off valve (ball valve) for your safety. (see pg. 19) Closing the ball valve before folding the implement for transport will eliminate the possibility of accidental opening of the marker during transport.
 - A) On three fold implements accidental opening during transport may result in having the marker come in contact with overhead power lines.
 - B) On five folds, opening of the markers in the transport position will result in extensive damage to the SIDE ARM and also to the implement! It has been known for markers to creep open when left overnight in the transport position. To prevent this the ball valve must be shut off.

3. Before even going to the field:

Set the sensitivity of the hydraulic control (on the tractor) that operates the markers. On the newer tractors it is a simple adjustment to regulate the détente pressure setting so that when the operator pushes the hydraulic lever ahead to extend the marker, the lever will stay in the forward position without being held until the marker is fully extended and returns to the neutral position without assistance. With the lever staying in the forward or back position without having to be held, the operator is free to complete the rest of the procedures that are required when coming to the end of the field. (i.e. Raise the implement out of the ground, disengage the land wheel, etc.)

Every operator will after time develop his own system or procedure of operating the markers in the field. The following are some of our recommendations:

- A) It is our opinion that adjusting the marker length so that the disc marks to the center of the tractor on the next pass is best.
- B) A helpful aid to your markers is to place a pinstripe down the center of your tractor hood. The pinstripe will help you line up your tractor easier and keep it lined up.
- C) When you come to the end of the field bring the marker in just as you begin to turn. The marker will always be to the inside of the turn and if done right the marking disc will almost pivot in one spot and then raise into position.
- D) Don't make a practice of retracting the marker on extremely rough ground. The last 25% of the markers travel to the closed position is not cushioned by the counter balance springs. Severe stress is placed on the marker in such conditions and the second stage arm may have trouble lining up to enter in between the two wheels.
- E) Never fold the markers out while turning! The marker on the outside of a turn is moving quickly through rough head lands. We strongly suggest being fully around the corner of the end of the field before extending the marker. Folding the markers out while turning on the rough head lands will cause damage to the markers!
- F) If the implement is sliding sideways when working in hills it works very well if the operator instead of lining up with center of hood looks back and lines up the center shank of the implement on the mark.
- G) On extremely hilly conditions or on land with drainage ditches caution must be used not to "top out" the marker. The marker can be over elevated and damage to the marker will result.

TROUBLE SHOOTING

- If you are having trouble **getting a legible mark** try adjusting the angle of the blade along with adding more weight. More weight can be added to your blade by adjusting the counter balance springs on the main frame of the marker. Depending on your implement and the size of the marker, different size springs are available from your dealer.
- If you are having problems with your **marker bouncing back and forth** in the field you will need to check the angle on your disc blade. Having too much angle on your blade will cause this problem. Adjust your blade to have just enough resistance against it to keep it from bouncing.
- If you are having problems **getting enough weight on the disc** you may want to try other springs that are available from your dealer.
- After some use the **cables may stretch** and need to be tightened. (See pg. 9&12.)
- Any **cable shear bolt problems** are generally a result of the hydraulic cylinder not being fully extended in the working position.
- If your **second stage arm begins to “creep” out of its holder** while you are driving down the field it could be one of two things. This could be a hydraulic problem meaning that your valve is not holding properly and it is letting the marker creep out. It could also be a cable adjustment problem. Your outside cable must be tight enough to hold this arm in place when the cylinder is fully retracted. This problem is extremely hard on the markers and must be dealt with. If this continues on a regular basis contact your dealer as soon as possible.
- If the second stage arm **shear bolts (5/16 x 3-1/2") are breaking** it could be:
 - a) Too much weight on the marking disc.
 - b) Too much angle on the disc blade or the disc assembly was improperly installed .
(It must be attached to the bottom of the third stage arm.)
 - c) The inside cable may be too loose.
- If the **disc angle keeps coming out of adjustment**, make sure you have a flat washer and a lockwasher over the slotted holes on the disc guard. You can also place a small amount of dirt between the disc assembly and the third stage to help hold it in place.

DAILY MAINTENANCE

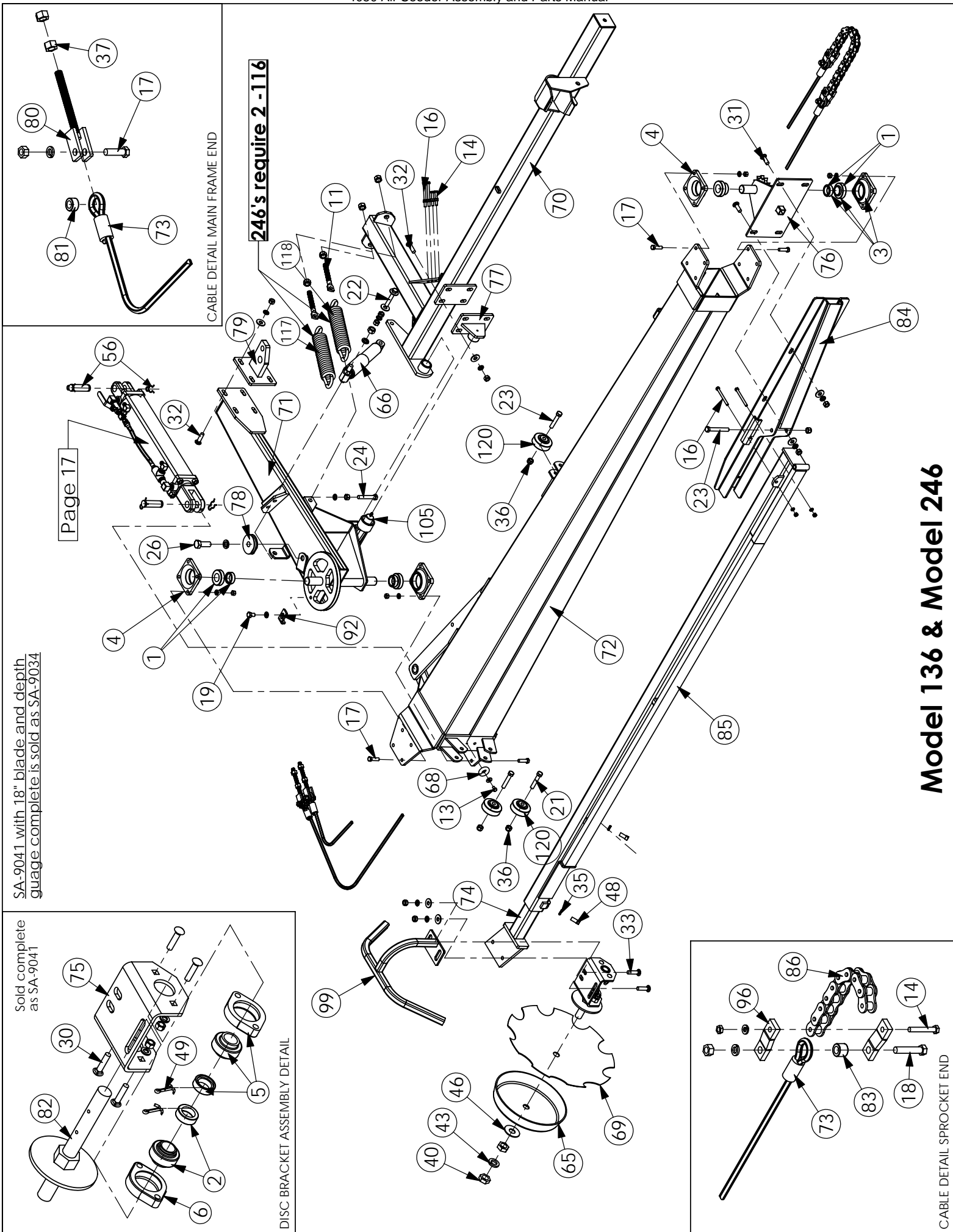
A small amount of daily maintenance will add years of life to your SIDE ARM markers.

1. Grease the grease points. (2 on the small markers and 8 on the large.)
2. Visual check of the marker in general.
 - Cable tension
 - Second stage arm riding high in its cradle between the 3" wheels. (see pg. 11.)
 - Check that no bolts are working loose

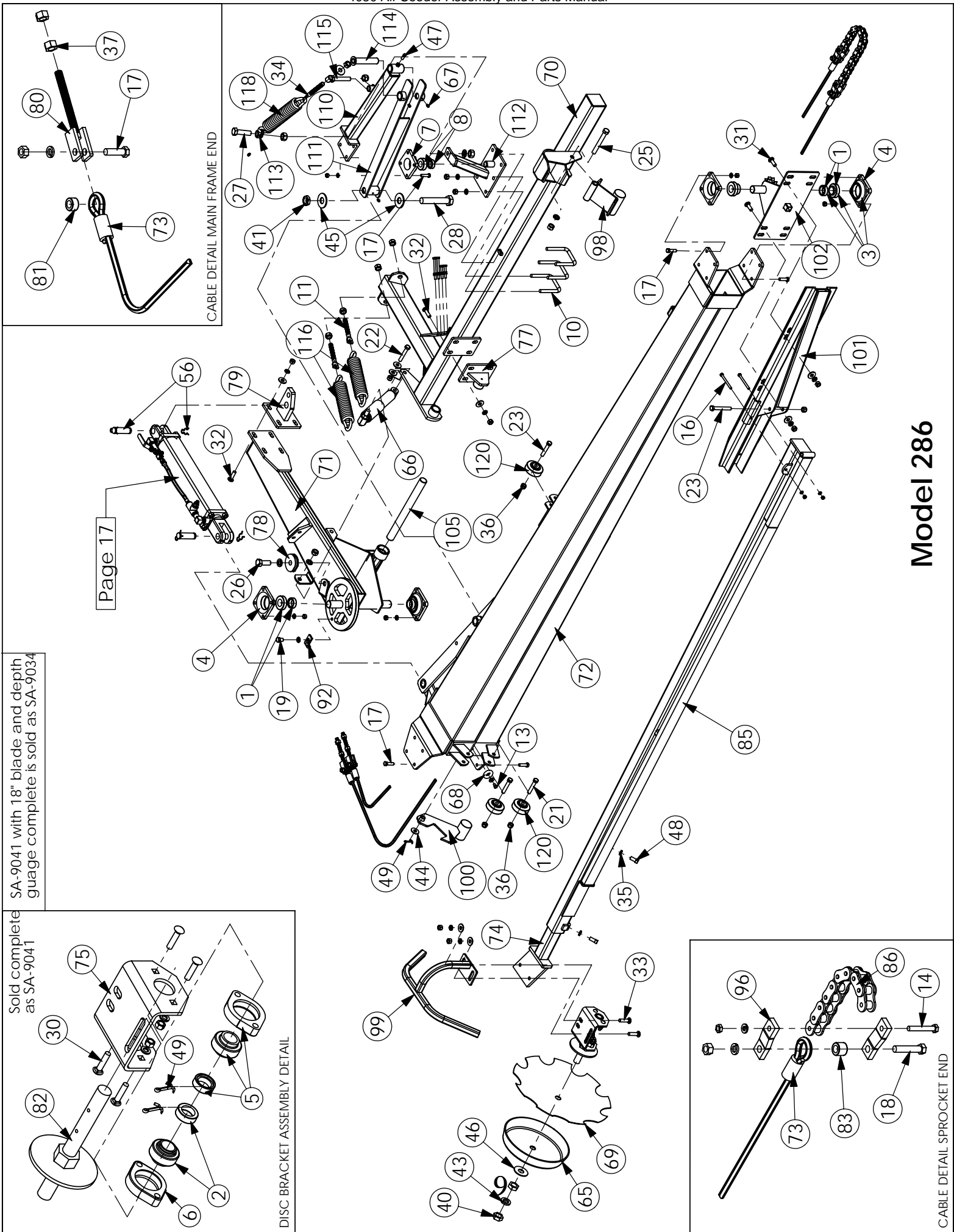
YEARLY MAINTENANCE

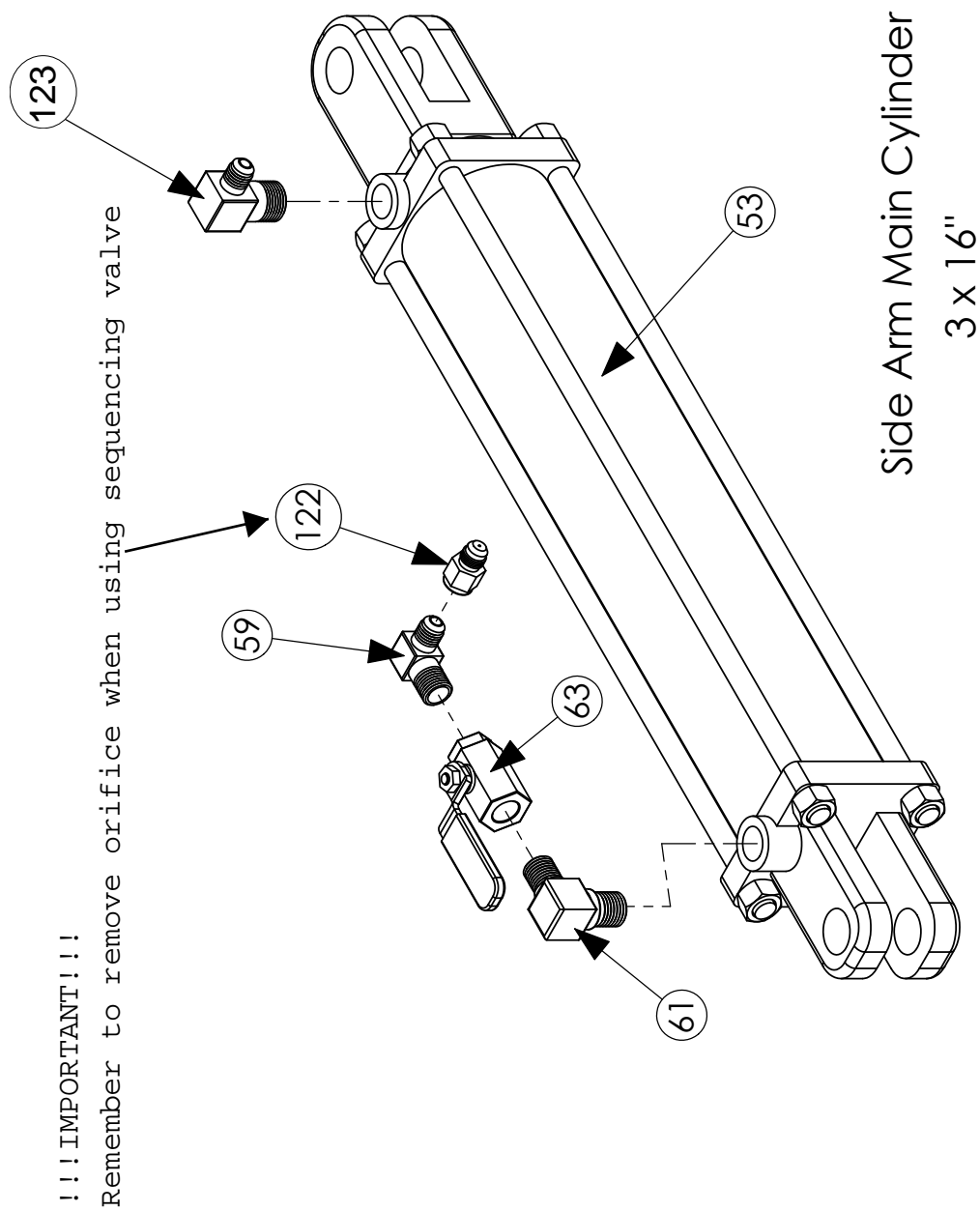
A small amount of yearly maintenance will add years of life to your SIDE ARM markers.
(The best time to do this is just before you put the implement away for the season.)

- Look entire marker over for any breakage or extensive wear.
- Make sure the single wheel of the primary arm is lining up properly with its cradle on the sub-frame. (see pictures)
- Make sure the second stage arm is riding high in its cradle between the 3" wheels. (pg. 11)
- Oil the roller chain.
- Remove shear bolts on the second stage arm and open. Grease the tube top and bottom the prevent rusting shut.
- Paint up all the scratch marks.



Model 136 & Model 246





S/N 14844 & UP

HAUKAAS FIELD MARKERS

THE FOLLOWING PARTS CORRESPOND WITH THE DRAWINGS ON THE PREVIOUS PAGES

Drw #	Part #	Description
1	BRG-2207	1-1/4" BEARING with LOCKING COLLAR
2	BRG-2209	1" BEARING with LOCKING COLLAR (for 2-BOLT)
3	BRG-2450	1-1/4" BEARING & HOUSING COMPLETE
4	BRG-2463	1-1/4" BEARING HOUSING ONLY
5	BRG-2476	1" BEARING & HOUSING COMPLETE (2 BLT)
6	BRG-2486	1" BEARING HOUSING ONLY (2 BLT)
7	BRG-2866	1" BEARING HOUSING ONLY (4 BOLT)
8	BRG-2867	1" BEARING with LOCKING COLLAR (for 4 BOLT)
9	FNS-02290	5/8" U-BOLT FOR 4x4" SQ. TUBE
10	FNS-02357	1/2" U-BOLT FOR 3x3" SQ. TUBE
11	FNS-02392	5/8-11x6" I-BOLT (4" THREAD)
12	FNS-02531	3/8"x16x3/8" SETSCREW
13	FNS-110B5PC	5/16 x 1/2" GR. 5 HEX BOLT
14	FNS-112-5PC	5/16x2" GR. 5 HEX BOLT
15	FNS-112-8PC	5/16x2" GR. 8 HEX BOLT
16	FNS-113B5PC	5/16x3-1/2" GR. 5 SHEAR BOLT
17	FNS-131B5PC	7/16x1-1/2" GR. 5 SHEAR BOLT
18	FNS-132-5PC	7/16x2" GR. 5 HEX BOLT PLT
19	FNS-140C5PC	1/2 x 3/4" GR. 5 HEX BOLT
20	FNS-141-5PC	1/2 x 1" GR. 5 HEX BOLT
21	FNS-142C5PC	1/2x2-3/4" GR. 5 HEX BOLT
22	FNS-143-5PC	1/2 x 3" GR. 5 HEX BOLT
23	FNS-143C8PC	1/2x3-3/4" GR. 8 HEX BOLT
24	FNS-144B5PC	1/2x4-1/2" STOP BOLT
25	FNS-165B5PC	5/8x5-1/2" GR. 5 HEX BOLT
26	FNS-172-5PC	3/4 x 2" GR. 5 HEX BOLT
27	FNS-172C5PC	3/4x2-3/4" GR. 5 HEX BOLT
28	FNS-195B5PC	1" x 5-1/2" GR. 5 HEX BOLT
29	FNS-197-5PC	1" x 7" GR. 5 HEX BOLT
30	FNS-221B5PC	3/8x1-1/2" GR. 5 CARRIAGE BOLT
31	FNS-241A5PC	1/2x1-1/4" GR. 5 CARRIAGE BOLT
32	FNS-241B5PC	1/2x1-1/2" GR. 5 CARRIAGE BOLT
33	FNS-241C5PC	1/2x1-3/4" GR. 5 CARRIAGE BOLT
34	FNS-3685PC	5/8"x8"NC GR. 5 SPADE BLT
35	FNS-54JPC	1/2"- 13 NC JAM NUT
36	FNS-54LPC	1/2"- 13 NC NYLON LOCKNUT
37	FNS-54RPC	1/2"-13 NC HEX NUT
38	FNS-57LPC	3/4"- NC NYLON LOCKNUT
39	FNS-57SPC	3/4"-10 STOVER NUT
40	FNS-59JPC	1" - 8 JAM NUT PLT
41	FNS-59RPC	1"-8 HEX NUT PLT
42	FNS-59SPC	1"-8 STOVER NUT PL
43	FNS-69RP	1" LOCK WASHER PLT
44	FNS-74RP	1/2" FLAT WASHER PLT
45	FNS-79NP	1" FLAT WASHER SAE
46	FNS-79RP	1" FLAT WASHER PLT
47	FNS-82CC	3/8x3/4" SQ HD SET SCREW
48	FNS-8A41BPC	1/2 x1-1/2"SQ HD SET SCREW
49	FNS-8CB-1BP	3/16 x 1-1/2 COTTER-PIN
50	FNS-96SLN	5/8" STOVER LOCK NUT

HAUKAAS FIELD MARKERS

THE FOLLOWING PARTS CORRESPOND WITH THE DRAWINGS ON THE PREVIOUS PAGES

51	HP-9JF026	1/4"HOSEx26" 9/16" FEMALE JIC
52	HP-9JF032	1/4"HOSEx32" 9/16" FEMALE JIC
53	HYD-2368	HYDRAULIC CYLINDER
54	HYD-2515	9/16"JIC MxFxF TEE
55	HYD-2516	1/4"MALE NPT->9/16"MALE JIC 90 DEG ELBOW
56	HYD-2528	CYLINDER PIN KIT
57	HYD-2888	1/2"MALE NPT->3/8"FEMALE NPT 90 DEG ELBOW
58	HYD-2890	1-1/2"x4" HYDRAULIC CYLINDER (3000PSI)
59	HYD-25010606	9/16" 18 MJIC to 3/8" MNPT 90 DEG
60	HYD-2892	3/8"MALE NPT->#6MALE JIC TEE
61	HYD-2893	1/2"MALE NPT->3/8"MALE NPT 90 DEG ELBOW
62	HYD-2894	1/4"x11-1/2" HOSE 1/4"MALE NPT->#6FEMALE JIC 9/16"-18
63	HYD-2895	3/8" BALL VALVE
64	HYD-2896	PILOT OPERATED CHECK VALVE
65	MIS-2192	NYLON DEPTH GAUGE
66	MIS-2195	SHOCK ABSORBER
67	MIS-2325	GF641 GREASE ZIRK
68	MIS-2362	RUBBER BUMPER PAD
69	MIS-2526	18" NOTCHED DISC BLADE
70	SA-8051L	SMALL SUB-FRAME LEFT 136,246,286
70	SA-8051R	SMALL SUB-FRAME RIGHT 136,246,286
71	SA-8052L	SMALL MAIN FRAME LEFT 136,246,286
71	SA-8052R	SMALL MAIN FRAME RIGHT 136,246,286
72	SA-8053/136L	PRIMARY ARM 136 LEFT
72	SA-8053/136R	PRIMARY ARM 136 RIGHT
72	SA-8053/246L	PRIMARY ARM 246 LEFT
72	SA-8053/246R	PRIMARY ARM 246 RIGHT
72	SA-8053/286L	PRIMARY ARM 286 LEFT
72	SA-8053/286R	PRIMARY ARM 286 RIGHT
73	SA-8054/136	136 CABLE 88" OVERALL
73	SA-8054/246	246 CABLE 112" OVERALL
73	SA-8054/286	286 CABLE 124" OVERALL
73	SA-8054/356	356 CABLE 134" OVERALL
73	SA-8054/466	466 CABLE 158" OVERALL
74	SA-8055	THIRD STAGE ARM
75	SA-8056	DISC ASSEMBLY BRACKET
76	SA-8057	SMALL SPROCKET ASSEMBLY (4 HOLE) 136,246
77	SA-8065	END BUSHING BRACKET ASSEMBLY
78	SA-8066	3" CABLE PULLEY
79	SA-8067	HYDRAULIC CYLINDER ANCHOR BRACKET
80	SA-8069	CABLE CLEVIS BOLTS
81	SA-8082	CABLE/CLEVIS BUSHING (1/2")
82	SA-8084	DISC AXLE
83	SA-8085	1/2 LINK BUSHING 11/16"
84	SA-8086	SMALL ANGLE IRON ASSEMBLY (4 HOLE) 136,246
85	SA-8087/136	136 2ND STAGE ARM TUBE ASSEMBLY
85	SA-8087/246	246 2ND STAGE ARM TUBE ASSEMBLY
85	SA-8087/286	286 2ND STAGE ARM TUBE ASSEMBLY
86	CHN-2537	#80 ROLLER CHAIN (18 PINS-20" LONG)
87	SA-8104/356L	PRIMARY ARM 356 LEFT
87	SA-8104/356R	PRIMARY ARM 356 RIGHT
87	SA-8104/466L	PRIMARY ARM 466 LEFT
87	SA-8104/466R	PRIMARY ARM 466 RIGHT

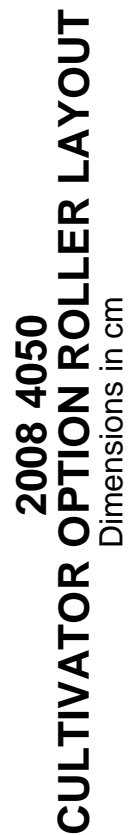
HAUKAAS FIELD MARKERS

THE FOLLOWING PARTS CORRESPOND WITH THE DRAWINGS ON THE PREVIOUS PAGES

88	SA-8109L	END BUSHING BRACKET ASSEMBLY LEFT
88	SA-8109R	END BUSHING BRACKET ASSEMBLY RIGHT
89	SA-8118/356	356 2ND STAGE ARM TUBE ASSEMBLY
89	SA-8118/466	466 2ND STAGE ARM TUBE ASSEMBLY
90	SA-8182	STABILIZER SPRING ANCHOR RING
91	SA-8183	STABILIZER SPRING LIFT BOLT/BUSHING
92	SA-8184	CABLE CLIP
93	SA-8195	LG ANGLE IRON ASSEMBLY (8 HOLE)
94	SA-8196	LG SPROCKET ASSEMBLY (8 HOLE)
95	SA-8218	3/8 EXTENDED 1/2 LINK 356/466 no hdwe (2 links/pk)
96	SA-8219	3/8" HALF LINK 136-286 no hardware (2 links/pk)
97	SA-8221	STABILIZER ARM PIVOT ASSEMBLY
98	SA-8222	TUBE LOCK LATCH 136 TO 286
99	SA-8223	1" SQUARE TUBE DISC GUARD
100	SA-8224	AUTO-LOCK LATCH
101	SA-8335	SM ANGLE IRON ASSEMBLY (8 HOLE) 286
102	SA-8336	SM SPROCKET ASSEMBLY (8 HOLE) 286
103	SA-8337L	466 MAIN FRAME LEFT
103	SA-8337R	466 MAIN FRAME RIGHT
104	SA-8338L	LARGE SUB-FRAME LEFT
104	SA-8338R	LARGE SUB-FRAME RIGHT
105	SA-8339	MAIN FRAME SHAFT (1-1/4" COLD ROLLED 14" LONG)
106	SA-8340	STABILIZER ARM ASSEMBLY
107	SA-8381	SL-HYD LIFT BRACKET 466
108	SA-8385	TUBE LOCK LATCH 356,466
109	SA-8400	8x1.25x8MM SET SCREW 3/64" ORIFICE
110	SA-8417L	SM STABILIZER TUBE ARM LEFT ASSEMBLY
110	SA-8417R	SM STABILIZER TUBE ARM RIGHT ASSEMBLY
111	SA-8418	SM STABILIZER WEB ARM ASSEMBLY
112	SA-8419L	SM STAB ARM PEDESTAL 286 LEFT
112	SA-8419R	SM STAB ARM PEDESTAL 286 RIGHT
113	SA-8420	SM STABILIZER ARM SPRING/ANCHOR ASSEMBLY
114	SA-8421	SM STABILIZER CENTRE PIN ASSEMBLY
115	SA-8422	STAB/I-BOLT HOLDER
116	SPR-2173	LARGE CB SPRING
117	SPR-2315	SMALL CB SPRING
118	SPR-2395	MEDIUM CB SPRING
119	SPR-2498	X-LARGE CB SPRING
120	WHL-2172	3" NYLON WHEEL
121	HYD-65000606	9/16 MJ - 9/16 FJS 90 DEG SWIVEL
122	HYD-24060606.047	ORIFICE IN 9/16 JIC F-M ADAPTER
123	HYD-2494	9/16#6JICM-1/2#8 NPTM 90 2501-0608

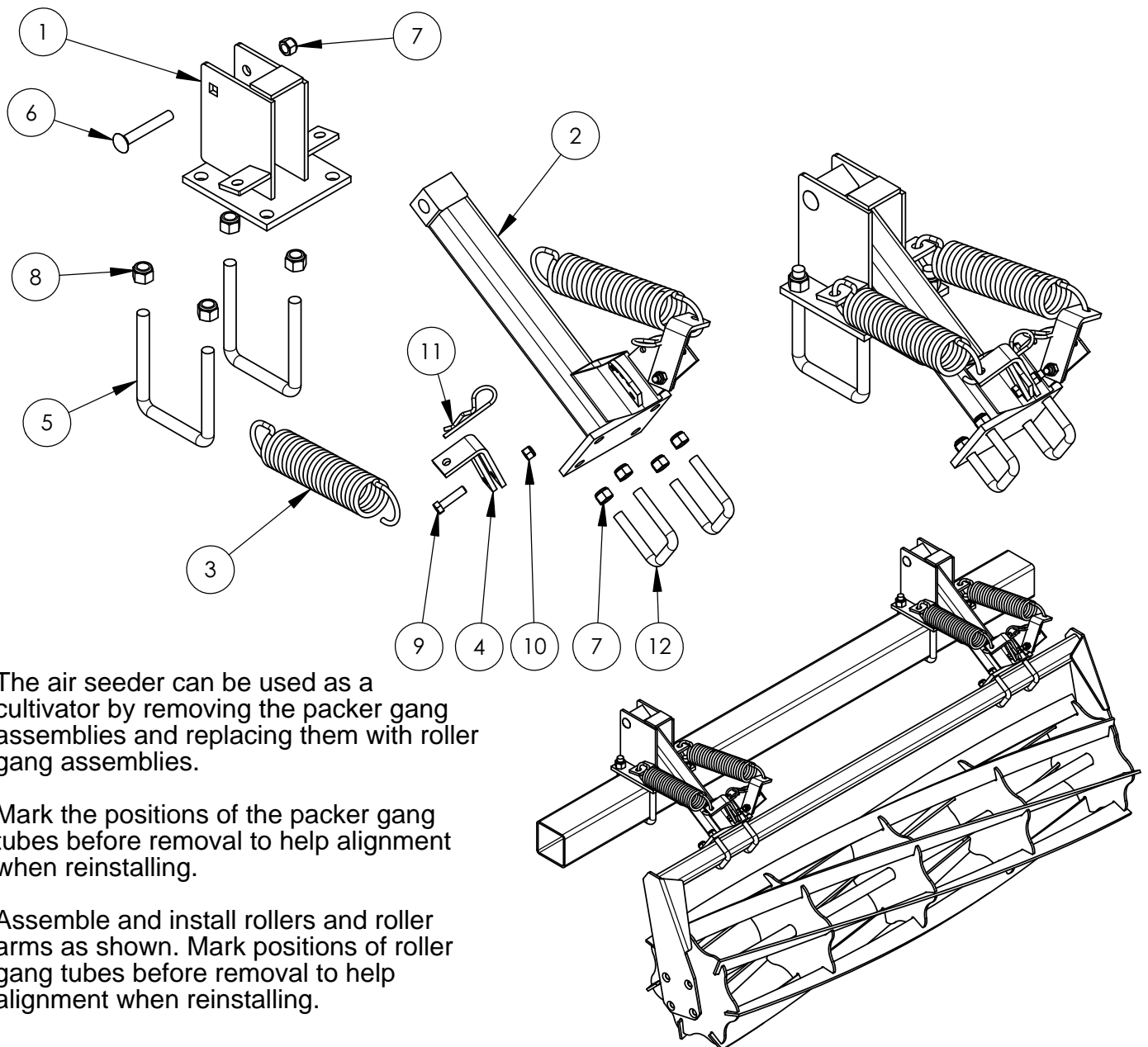
Reference Chart for Springs

Part #		Model 136	Model 246	Model 286	Model 356	Model 466	Overall Length (in)	Wire Dia (in)	Active Coils
SPR-2315	SM	1					13 7/8	.362	27
SPR-2395	MED	1		1			13	.406	23.5
SPR-2173	LG		2	2	3	1	13 1/8	.437	21.5
SPR-2498	X-LG					2	13 1/4	.500	18.5
SPR-2394	Weight Equalizer Spring WEK								



CULTIVATOR OPTION - ROLLER ARM ASSEMBLY

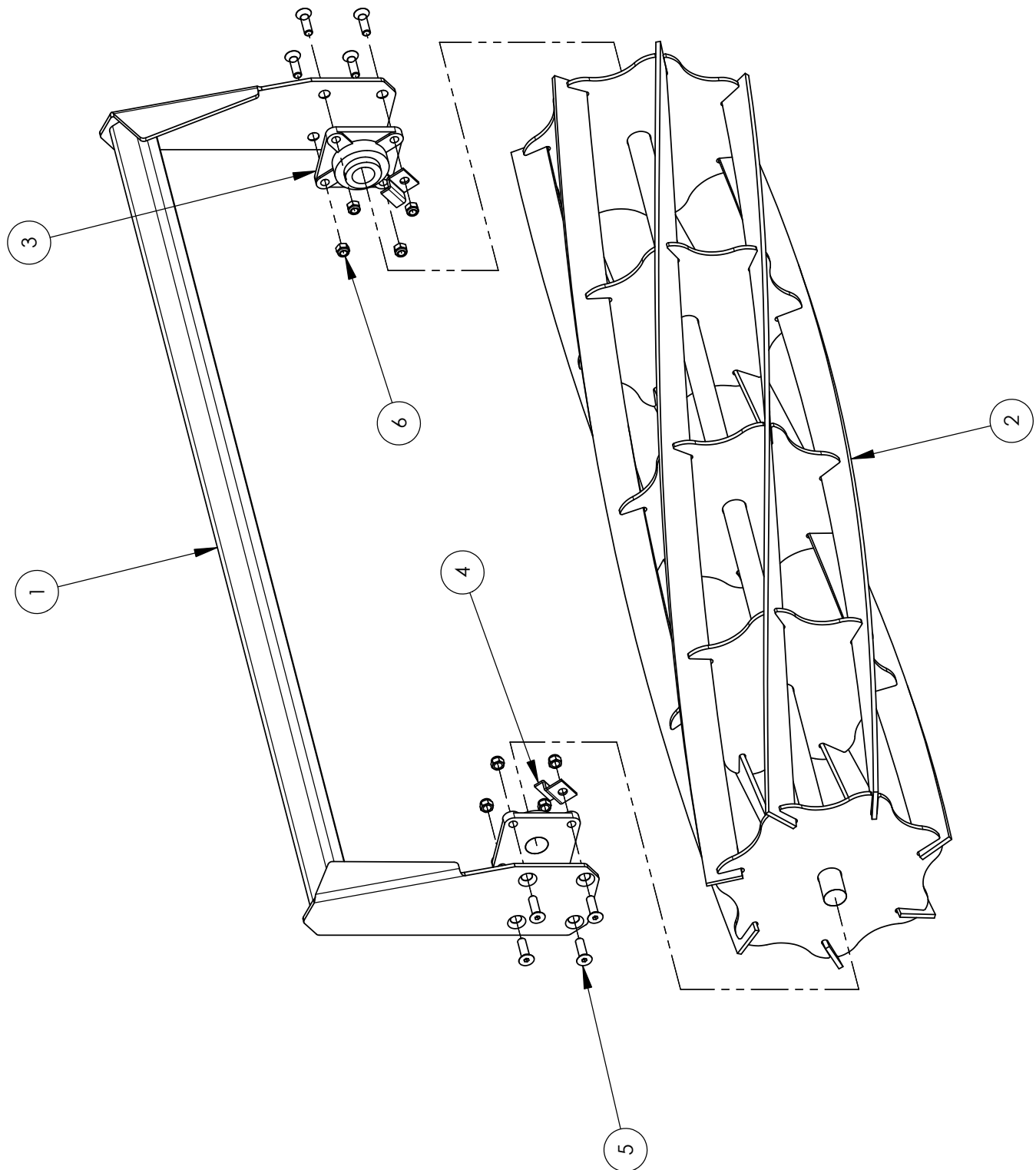
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	R80045	ROLLER HARROW MOUNT
2	1	R80046	ROLLER HARROW ARM
3	2	R0035	2" x 10" HARROW ARM SPRING
4	2	RB0021	TIGHTENER, SINGLE SPRING
5	2	BU1040	5/8 x 4 x 5-1/2" U-BOLT
6	1	BC0835H	1/2" X 13NC X 3-1/2" LG. CARRIAGE BOLT GR. 5
7	5	BN08L	1/2" NYLOCK NUT NC
8	4	BN10L	5/8" NYLOCK NUT NC
9	2	B0615	3/8" NC 1 1/2" HEX BOLT GR.5
10	2	BN06L	3/8"-16NC LOCK NUT
11	2	GHP9	#9 HAIR PIN
12	2	BU0820	1/2" x 2 x 3 U-BOLT



The air seeder can be used as a cultivator by removing the packer gang assemblies and replacing them with roller gang assemblies.

Mark the positions of the packer gang tubes before removal to help alignment when reinstalling.

Assemble and install rollers and roller arms as shown. Mark positions of roller gang tubes before removal to help alignment when reinstalling.



14" ROLLER HARROW ASSEMBLY - 3' 0" LONG

COMPLETE ASSEMBLY PART NO. MR1403R

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	RH1305	3 FT ROLLER FRAME FOR 14"
2	1	RH1403R	3 FT ROLLER ONLY RH SPIRAL FOR 14"
3	2	R0055	1 1/4" TRIPLE SEAL BEARING 4 BOLT FLANGE
4	2	R20000	SCRAPER BRACKET
5	8	B0715FS	7/16"-14NC FLAT SOCKET HEX CAP SCREW
6	8	BN07L	7/16" NYLOCK NUT NC

14" ROLLER HARROW ASSEMBLY - 4' 0" LONG

COMPLETE ASSEMBLY PART NO. MR1404R

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	RH1405	4 FT ROLLER FRAME FOR 14"
2	1	RH1404R	4 FT ROLLER ONLY RH SPIRAL FOR 14"
3	2	R0055	1 1/4" TRIPLE SEAL BEARING 4 BOLT FLANGE
4	2	R20000	SCRAPER BRACKET
5	8	B0715FS	7/16"-14NC FLAT SOCKET HEX CAP SCREW
6	8	BN07L	7/16" NYLOCK NUT NC

14" ROLLER HARROW ASSEMBLY - 5' 0" LONG

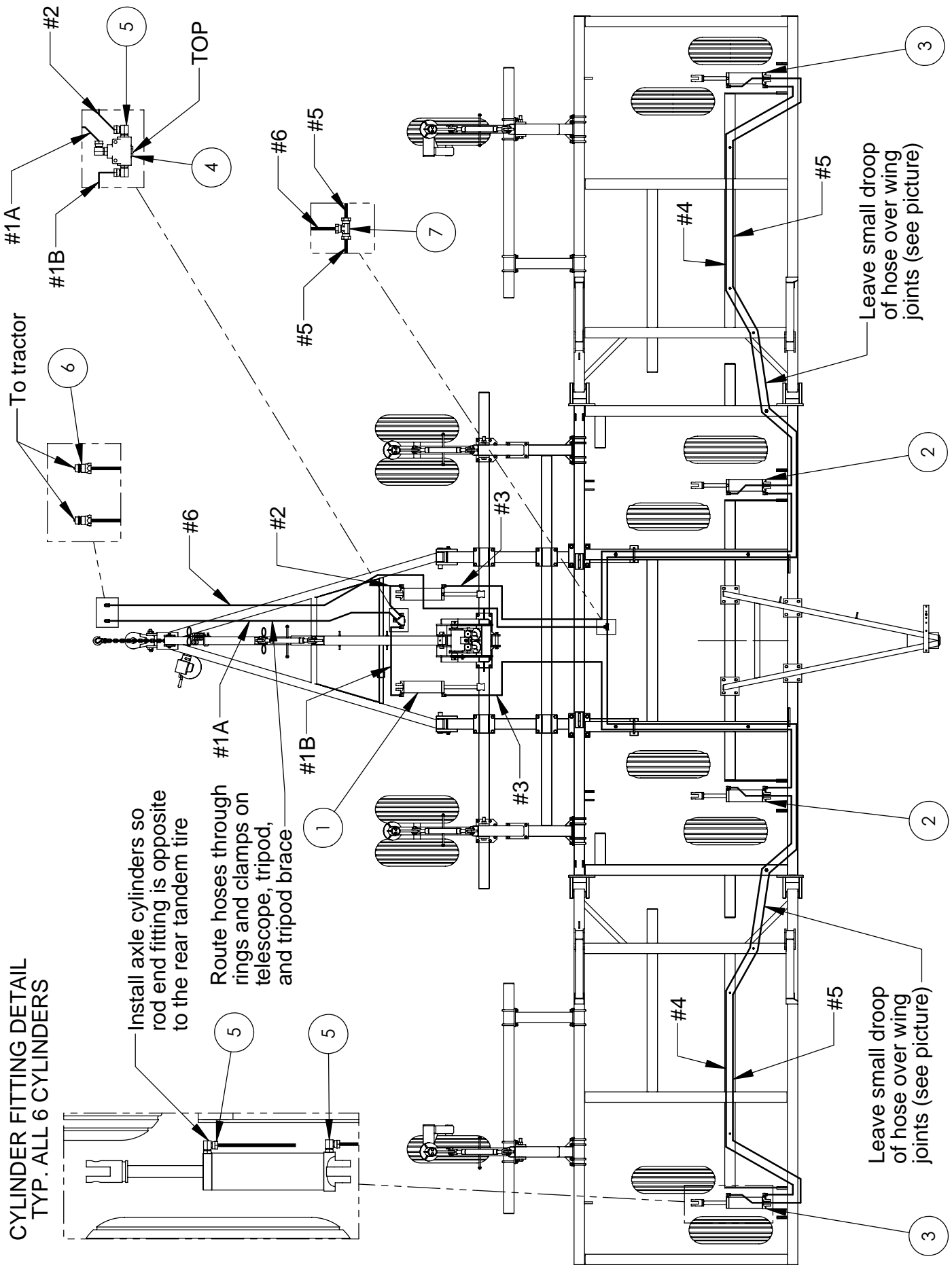
COMPLETE ASSEMBLY PART NO. MR1405R

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	RH1505	5 FT ROLLER FRAME FOR 14"
2	1	RH1405R	5 FT ROLLER ONLY RH SPIRAL FOR 14"
3	2	R0055	1 1/4" TRIPLE SEAL BEARING 4 BOLT FLANGE
4	2	R20000	SCRAPER BRACKET
5	8	B0715FS	7/16"-14NC FLAT SOCKET HEX CAP SCREW
6	8	BN07L	7/16" NYLOCK NUT NC

14" ROLLER HARROW ASSEMBLY - 6' 2" LONG

COMPLETE ASSEMBLY PART NO. MR1406R

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	RH1625	6' 2" ROLLER FRAME FOR 14"
2	1	RH1406R	6' 2" ROLLER ONLY RH SPIRAL FOR 14"
3	2	R0055	1 1/4" TRIPLE SEAL BEARING 4 BOLT FLANGE
4	2	R20000	SCRAPER BRACKET
5	8	B0715FS	7/16"-14NC FLAT SOCKET HEX CAP SCREW
6	8	BN07L	7/16" NYLOCK NUT NC



AXLE LIFT HYDRAULICS

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	HSR40095	4" BORE x 9 1/2" STROKE HYD. CYLINDER
2	2	HSR4008	4" BORE x 8" STROKE HYD. CYLINDER
3	2	HSR3708	3 3/4" BORE x 8" STROKE HYD. CYLINDER
4	1	HPMSC10	STROKE CONTROL VALVE
5	15	H951586	-08 ORB TO -06 NPT SWIVEL ELBOW
6	2	H80104P	1/2" NPT MALE PIONEER COUPLER
7	1	H956666	-06F NPT ALL SWIVEL TEE
8		HZR40S	SEAL KIT FOR HSR40095 & HSR4008 CYLINDERS
9		HZR37S	SEAL KIT FOR HSR3708 CYLINDER
10	10	P0160A	HOSE CLAMP 3"
11	10	BN06L	3/8"NC LOCKNUT

HOSE #	QTY.	LENGTH (m)	FROM	TO
1A	1	5.3	TRACTOR	BOTTOM OF STROKE CONTROL VALVE
1B	1	0.5	STROKE CONTROL VALVE	BARREL END OF HSR40095 - LH
2	1	0.5	STROKE CONTROL VALVE	BARREL END OF HSR40095 - RH
3	2	5.0	ROD END OF HSR40095	BARREL END OF HSR4008
4	2	5.4	ROD END OF HSR4008	BARREL END OF HSR3708
5	2	8.9	ROD END OF HSR3708	TEE
6	1	6.3	TEE	TRACTOR

When connecting axle lift cylinders, connect barrel end of cylinder and leave rod end of cylinder disconnected until the air is purged from the cylinders and hoses.

When connecting self-levelling cylinders, leave the telescope disconnected from the pivot until the air is purged from the cylinders and hoses.

Purging re-phasing hydraulic systems: Operate tractor hydraulics to extend the cylinders completely. Keep the lever engaged for 2 - 3 minutes to flush the air through the system. (Each cylinder has an internal valve, which allows oil to by-pass only when completely extended).

DO NOT RETRACT CYLINDERS ALL THE WAY WITH THE MACHINE HITCHED TO THE TRACTOR. DRAWBAR MAY BE DAMAGED BY MACHINE LIFTING ON IT.

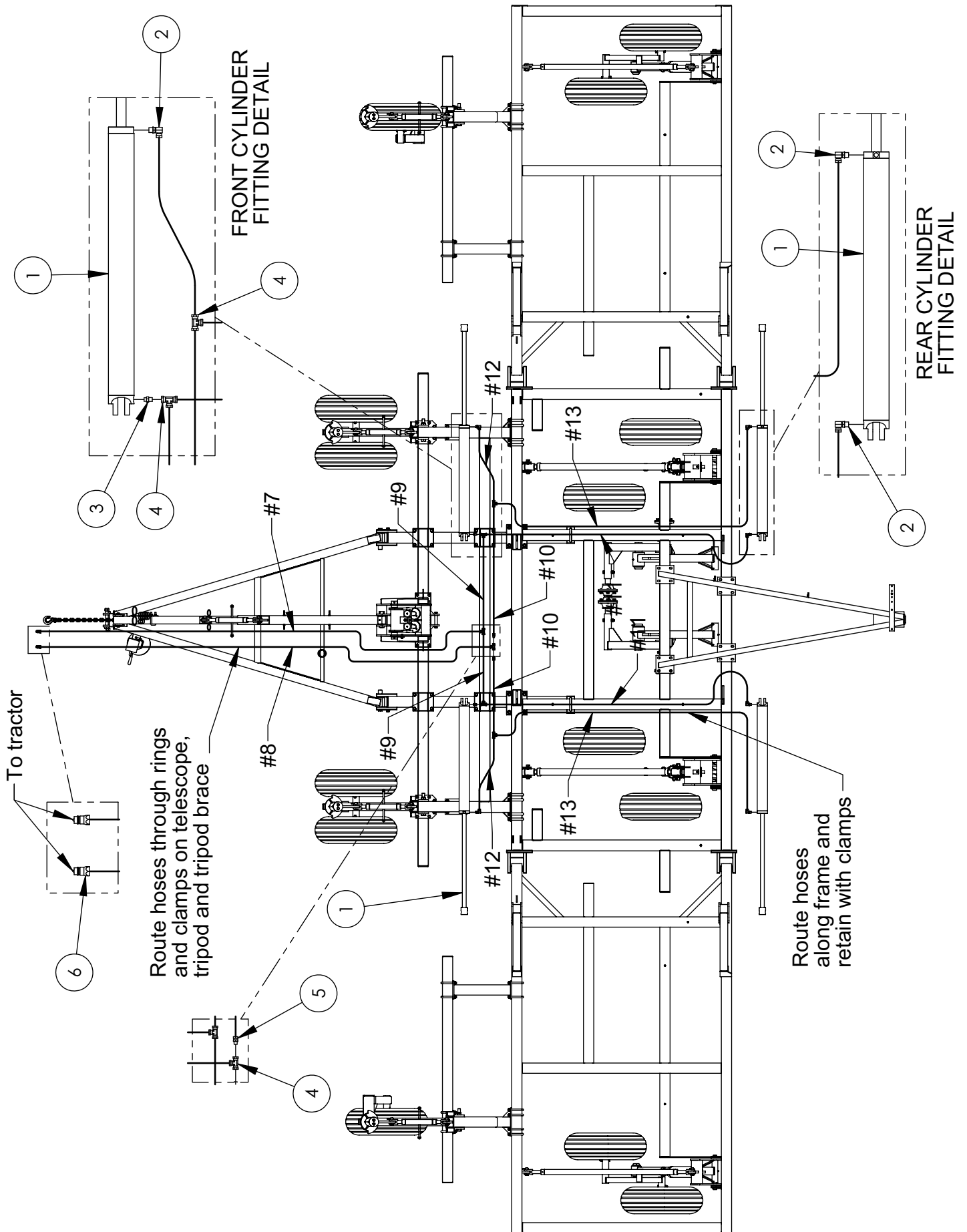
Place 1 red tie wrap on end of axle lower hose (#6) and 2 red tie wraps on end of axle raise hose (#1A) for easy hose identification when connecting hoses to tractor.



Route hoses behind axle towers



Leave small droop of hose (3-4") over wing joints



WING FOLD HYDRAULICS

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	4	HS3536	3 1/2" BORE x 36" STROKE HYD. CYLINDER
2	6	H951586	-08 ORB TO -06 NPT SWIVEL ELBOW
3	2	H915066	-06 ORB TO -06 NPT NIPPLE
4	6	H956666	-06F NPT ALL SWIVEL TEE
5	2	H1404668	-06M NPT TO -06F NPT RESTRICTOR .080"
6	2	H80104P	1/2" NPT MALE PIONEER COUPLER
7		HZ35SHD	SEAL KIT FOR HS3536 CYLINDER

HOSE #	QTY.	LENGTH (m)	FROM	TO
7B	1	6.3	TRACTOR	TEE
8R	1	6.3	TEE	TRACTOR
9	2	1.1	TEE	BARREL END TEE
10	2	1.1	TEE	RESTRICTOR/ROD END TEE
11	2	2.4	BARREL END TEE	REAR CYL. BARREL END
12	2	1.1	ROD END TEE	FRONT CYL. ROD END
13	2	3.0	ROD END TEE	REAR CYL. ROD END

When connecting wing fold cylinders, connect barrel end of cylinder and leave rod end of cylinder disconnected until air is purge from the cylinders and hoses. Support the barrel end of the cylinder with a block of wood as shown in the picture below.

Purging wing lift cylinders:

Extend cylinders completely and hold lever shortly (30 seconds).

Retract cylinders completely and hold lever shortly (30 seconds). Repeat 2 or 3 times.

Note: When ever air could have entered the wing lift cylinders, purge them!!!

Unhook the rod end and cycle cylinder in and out completely several times, before raising and lowering the wings.

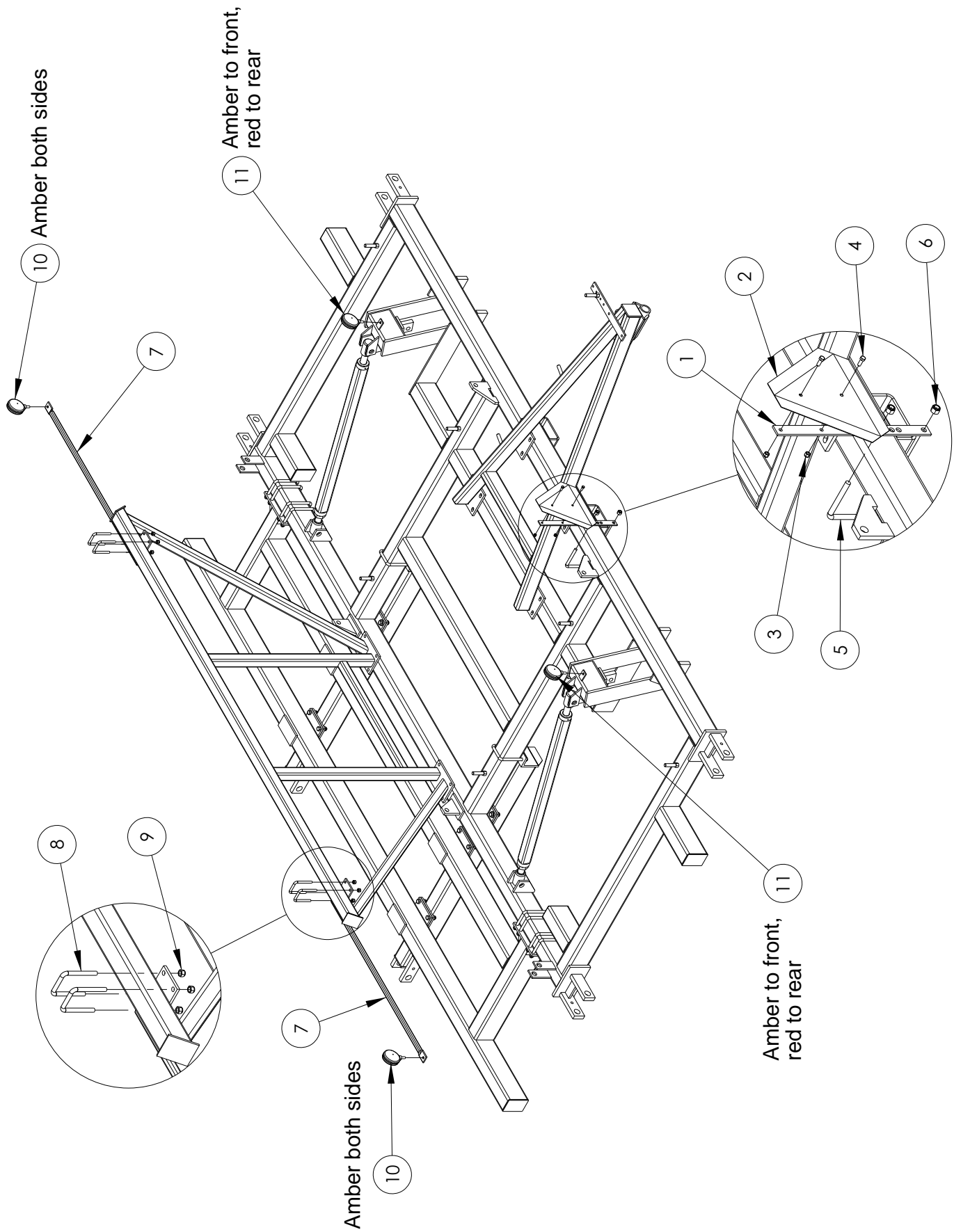
Air in the wing lift cylinders will cause the wings to free-fall to the ground!!!

ALWAYS UNFOLD WINGS before working on hydraulics!!! Never work on a lift system with the wings folded.

Place 1 green tie wrap on end of wing raise hose (#8) and 2 green tie wraps on end of wing lower hose (#7) for easy hose identification when connecting hoses to tractor.



Wood block under barrel end of cylinder for charging



LIGHTS AND SMV SIGN INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	C1011	SMV MOUNTING BRACKET
2	1	GAP103NS	SMV SIGN
3	2	BN06L	3/8"-16NC LOCK NUT
4	2	B0610	3/8 X 1" PLATED BOLT GR.5
5	1	BU1061	U-BOLT 5/8" x 6" x 5 1/2"
6	2	BN10L	5/8" NYLOCK NUT NC
7	2	T00061	LIGHT BRACKET
8	4	BU0830	1/2" x 3" x 4 1/4" U-BOLT
9	8	BN08L	1/2" NYLOCK NUT NC
10	2	GL313AA	DOUBLE FACE AMBER/AMBER LIGHT
11	2	GL3132RA	DOUBLE FACE RED/AMBER LIGHT
13	1	GL10409200	AIR SEEDER LIGHT WIRING KIT

1. Attach SMV mounting bracket (1) to rear beam of main frame with wide u-bolt (5) and 5/8" locknuts (6). Position bracket to left of tow hitch after installing shank mounts and packer or harrow mounts.
2. Mount SMV sign (2) to bracket with 3/8" x 1" hex bolts (4) and 3/8" locknuts (3).
3. Install light brackets (7) on wing rest with small u-bolts (8) and 1/2" locknuts (9). Fold wings to check for clearance with light brackets and adjust position of light brackets if necessary.
4. Install wiring kit to connect lights. See wiring harness diagram on following page for connections and wire colours. Note: place ground rings on wiring harness over light mounting studs before installing lights. Follow routing shown below routing wires through rings and tie wrap wires to beams and hydraulic hoses.
5. Install double face amber/amber lights (10) in light brackets on wing rest.
6. Install double face amber/red lights (11) in mounting tabs on axle towers. Mount lights so that the red face is to the rear of the machine.

