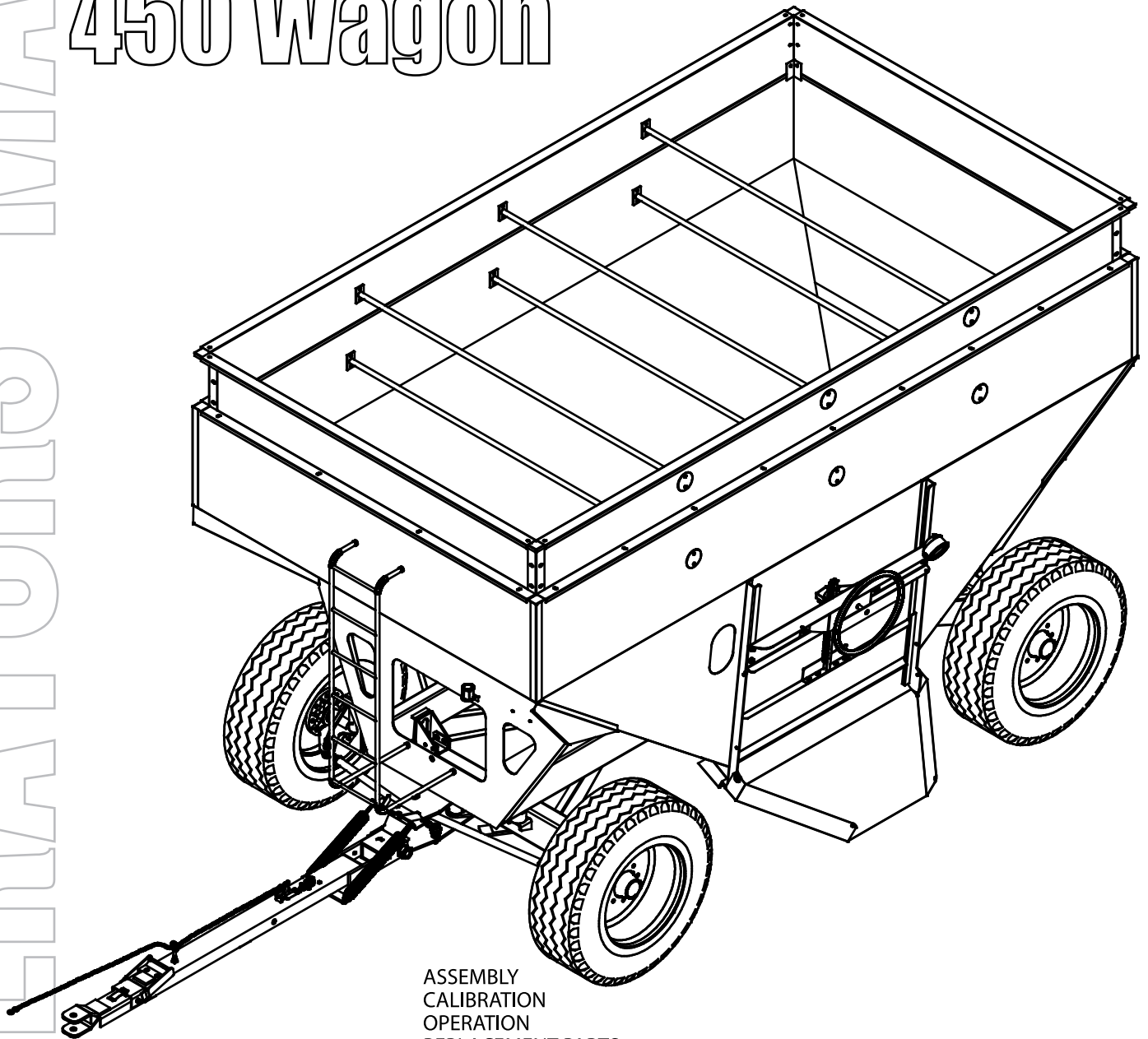




Demco

Gravity Flow 450 Wagon



ASSEMBLY
CALIBRATION
OPERATION
REPLACEMENT PARTS

READ *complete manual CAREFULLY
BEFORE attempting operation.*

Doing Our Best To Provide You The Best



WARNING: TO AVOID PERSONAL INJURY OR DEATH, OBSERVE THE FOLLOWING INSTRUCTIONS:

Never overload the wagon. The rating of the GF450 gear is 30,000 lbs. or the rating of the tires, whichever is less.

Ensure that anybody present is clear before applying power to any machinery used in conjunction with the wagon box or when moving the box.

Never allow anyone in, near, or on the gravity box during the transporting, loading, or unloading of grain. Moving grain is dangerous and can cause entrapment, resulting in severe injury or death by suffocation.

Do not exceed 20 miles per hour when towing the wagon.

INTRODUCTION

Thank you for purchasing a Demco Gravity Flow Wagon. We feel you have made a wise choice and hope you are completely satisfied with your new piece of equipment. Proper care and use will result in many years of service.

GENERAL INFORMATION

1. Unless otherwise specified, high-strength (grade5) (3 radial-line head markings) hex head bolts are used throughout assembly of this piece of equipment.
2. Whenever the terms “LEFT” and “RIGHT” are used in this manual it means from a position behind the wagon box and facing forward.
3. When placing a parts order, refer to this manual for proper part numbers and place order by PART NUMBER, DESCRIPTION and COLOR.
4. Read the assembly instructions carefully. Study the assembly procedures and all illustrations before you begin assembly. Note which parts are used in each step. This unit must be assembled in the proper sequence or complications will result.

WARRANTY POLICY, OPERATOR MANUALS & REGISTRATION

Go online to www.demco-products.com to review Demco warranty policies, operator manuals and register your Demco product.

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SAFETY

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH!



THIS SYMBOL MEANS
ATTENTION
BECOME ALERT
YOUR SAFETY IS INVOLVED!

SIGNAL WORDS:

This manual uses of the following signal words-- DANGER, WARNING, and CAUTION-- with safety messages. The appropriate signal word has been selected using the following guidelines.

DANGER:

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING:

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION:

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual, require additional copies, or if your manual is damaged, please contact your dealer or DEMCO, 4010 320th St., Boyden, IA 51234
ph: (712) 725-2311 or Toll Free: 1-800-543-3626 Fax: (712) 725-2380 or 1-800-845-6420
<http://www.demco-products.com>



SAFETY...YOU CAN LIVE WITH IT



EQUIPMENT SAFETY GUIDELINES

Every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or you yourself, follow them.

In order to provide a better view, certain illustrations in your owners manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace shield prior to use.

Replace any caution, warning, danger or instruction safety decal that is not readable or is missing.

Do not attempt to operate this equipment under the influence of alcohol or drugs.

Review safety instructions with all users annually.

Operator should be a responsible adult. **DO NOT ALLOW PERSONS TO OPERATE OR ASSEMBLE THIS UNIT UNTIL THEY HAVE DEVELOPED A THOROUGH UNDERSTANDING OF SAFETY PRECAUTIONS AND HOW IT WORKS.**

To prevent injury or death, use a tractor equipped with a roll over protective system (ROPS). Do not paint over, remove, or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice instructions on them.

Never exceed limits of a piece of machinery. If its ability to do a job, or to do so safely is in question **DON'T TRY IT.**



LIGHTING AND MARKING

It is the responsibility of customer to know lighting and marking requirements of local highway authorities and to install and maintain equipment to provide compliance with regulations. Add extra lights when transporting at night or during periods of limited visibility.

Lighting kits are available from your dealer or from manufacturer.



SAFETY SIGN CARE

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replacement parts that displayed a safety sign should also display current sign.
- Safety signs are available from your distributor, dealer parts department, or factory.

How to install safety signs:

- Be sure that installation area is clean and dry.
- Decide on exact position before you remove backing paper.
- Remove smallest portion of split backing paper.
- Align decal over specified area and carefully press small portion with exposed sticky backing in place.
- Slowly peel back remaining paper and carefully smooth remaining portion of decal into place.
- Small air pockets can be pierced with a pin and smoothed out using piece of decal backing paper.



TIRE SAFETY

- Failure to follow proper procedures when mounting a tire on a rim can produce an explosion which may result in a serious injury or death.
- Do not attempt to mount a tire unless you have proper equipment and experience to do job.
- Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
- Always order and install tires and wheels with appropriate type and load capacity to meet or exceed anticipated weight to be placed on the equipment.
- NEVER exceed 40 psi tire inflation when using truck tires on gravity flow wagons.
- Refer to "TIRE INFLATION CHART" in your owners manual for maximum tire pressure for a Demco Grain Wagon.



REMEMBER

Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or manufacturer.



BEFORE OPERATION:

- Carefully study and understand this manual and the Owner's Manual.
- Do not wear loose-fitting clothing which may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- It is recommended that suitable protective hearing and eye protection be worn.
- Operator may come in contact with certain materials which may require specific safety equipment relative to handling of such materials. (Examples: extremely dusty, molds, fungus, bulk fertilizers, etc.)
- Keep wheel and lug nuts tightened to specified torque.
- Assure that agricultural implement tires are inflated evenly.
- Give unit a visual inspection for any loose bolts, worn parts, or cracked welds, and make necessary repairs. Follow maintenance safety instructions included in this manual.
- Be sure there are no tools lying on or in equipment
- Do not use unit until you are sure that area is clear, especially around children and animals.
- Don't hurry learning process or take unit for granted. Ease into it and become familiar with your new equipment.
- Practice operation of your equipment and its attachments. Completely familiarize yourself and other operators with its operation before using.
- Make sure that brakes are evenly adjusted (if equipped with brakes)
- Use a tractor equipped with Roll Over Protection System (ROPS) and fasten your seat belt prior to starting the engine.
- Manufacturer does not recommend usage of a tractor with the ROPS removed.
- Move tractor wheels to widest recommended settings to increase stability.
- Do not allow anyone to stand between tongue or hitch and towing vehicle when backing up to equipment.



DURING OPERATION

- Beware of bystanders, PARTICULARLY CHILDREN! Always look around to make sure that it is safe to start engine of towing vehicle or move unit. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting.
- NO PASSENGERS ALLOWED- Do not carry passengers anywhere on or in tractor or equipment.
- Keep hands and clothing clear of moving parts.
- Do not clean, lubricate, or adjust your equipment while it is moving.

- When halting operation, even periodically, set tractor or towing vehicles brakes, disengage PTO, shut off engine, and remove ignition key.
- Be especially observant of operating area and terrain. Watch for holes, rocks, or other hidden hazards. Always inspect area prior to operation.
 - DO NOT operate near edge of drop-off or banks.
 - DO NOT operate on steep slopes as overturn may result.
 - Operate up and down (not across) intermediate slopes. Avoid sudden starts and stops.
- Pick the most level possible route when transporting across fields. Avoid edges of ditches, gullies, and steep hillsides.
- Be extra careful when working on inclines.
- Maneuver tractor or towing vehicle at safe speeds.
- Avoid overhead wires or other obstacles. Contact with overhead lines could cause serious injury or death.
- Avoid loose gravel, rocks, and holes; they can be dangerous for equipment operation or movement.
- Allow for unit length when making turns.
- Do not walk or work under raised components or attachments unless securely positioned and blocked.
- Keep all bystanders, pets, and livestock clear of work area.
- Operate towing vehicle from operators seat only.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside of unit.
- Never leave running equipment unattended.
- As a precaution, always recheck hardware on equipment following every 100 hours of operation. Correct all problems. Follow maintenance safety procedures.



FOLLOWING OPERATION

- Following operation, or when unhitching, stop tractor or towing vehicle, set brakes, shut off engine and remove ignition key.
- Store unit in an area away from human activity.
- Do not park equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.
- Do not permit children to play on or around stored unit.
- Make sure all parked machines are on a hard, level surface and engage all safety devices.
- Wheel chocks may be needed to prevent unit from rolling.



HIGHWAY AND TRANSPORT OPERATIONS

- **SAFETY CHAINS:** If equipment is going to be transported on a public highway, always follow state and local regulations regarding safety chains and auxiliary lighting. Be sure to check with local law enforcement agencies for your own particular regulations. Only safety chains (not elastic or nylon/plastic tow straps) should be used to retain connection between towing and towed machines in event of separation of primary attaching system. Use a high strength, appropriately sized hitch pin with a mechanical retainer and attach safety chains. Criss cross chains under tongue and secure to draw bar cage, mounting loops, or bumper frame.
- Adopt safe driving practices:
 - Keep brake pedals latched together at all times. **NEVER USE INDEPENDENT BRAKING WITH MACHINE IN TOW, LOSS OF CONTROL AND/OR UPSET OF UNIT CAN RESULT.**
 - Always drive at a safe speed relative to local conditions, ensure that your speed is low enough for an emergency stop. Keep speed to a minimum.
 - Reduce speed prior to turns to avoid risk of overturning.
 - Always keep tractor or towing vehicle in gear to provide engine braking when going downhill. Do not coast.
 - Do not drink and drive!
- Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
- Use approved accessory lighting, flags and necessary warning devices to protect operators of other vehicles on highway during transport. Various safety lights and devices are available from your dealer.
- Use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- When driving tractor and equipment on road under 20 m.p.h. (40 kph) at night or during day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
- Plan your route to avoid heavy traffic.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Be observant of bridge load ratings. Do not cross bridges rated lower than gross weight at which you are operating.

- Watch for obstructions overhead and side to side while transporting.
- Always operate equipment in a position to provide maximum visibility. Make allowances for increased length and weight of equipment when making turns, stopping unit, etc.



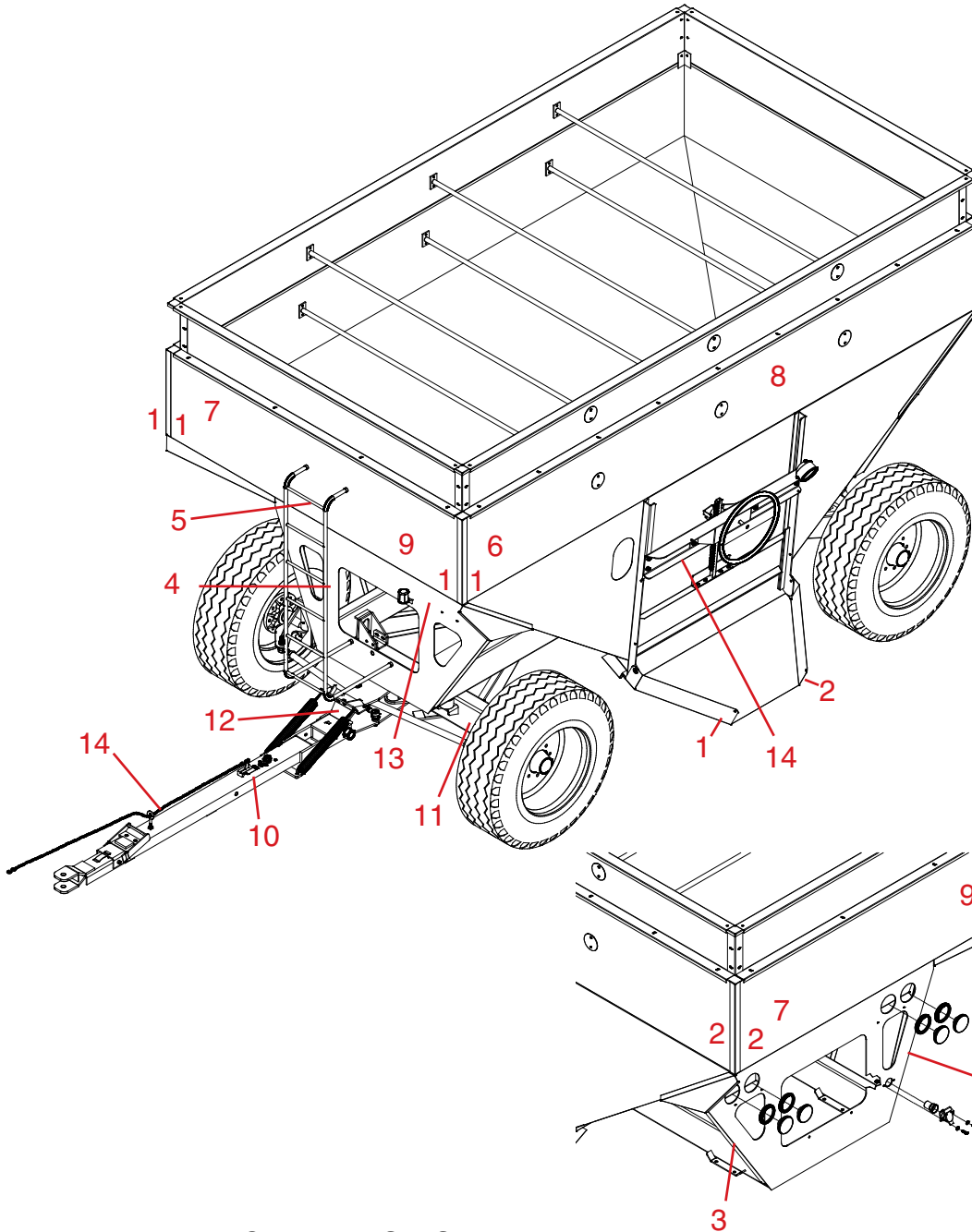
PERFORMING MAINTENANCE

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Make sure there is plenty of ventilation. Never operate engine of towing vehicle in a closed building. Exhaust fumes may cause asphyxiation.
- Before working on this machine, stop towing vehicle, set brakes, shut off engine and remove ignition key.
- Always use safety support and block wheels. Never use a jack to support machine.
- Always use proper tools or equipment for job at hand.
- Use extreme caution when making adjustments.
- Follow torque chart in owners manual when tightening bolts and nuts.
- Never use your hands to locate a hydraulic leak on attachments. Use a small piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate skin.
- Openings in skin and minor cuts are susceptible to infection from hydraulic fluid. Without immediate medical treatment, serious infection and reactions can occur.
- When disconnecting hydraulic lines, shut off hydraulic supply and relieve all hydraulic pressure.
- Replace all shields and guards after servicing and before moving.
- After servicing, be sure all tools, parts and service equipment are removed.
- Do not allow grease or oil to build up on any steps or platform.
- When replacing bolts, refer to owners manual.
- Refer to bolt torque chart in owners manual for head identification marking.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. Manufacturer will not claim responsibility for use of unapproved parts or accessories and other damages as a result of their use.
- If equipment has been altered in any way from original design, manufacturer does not accept any liability for injury or warranty.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment



SAFETY SIGN LOCATIONS

The types of safety sign and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various safety signs, the type of warning, and the area or particular function related to that area, that requires your SAFETY AWARENESS.



DECAL PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	04508	5	Amber Reflector (2.75" x 1.75")
2.	04804	5	Red Reflector (2.75" x 1.75")
3.	07278	2	Conspicuity Tape, Reflective (18")
4.	AG21006	1	Wagon Safety Decal (5" x 8")
5.	AG21067	1	"Keep off Ladder" (3 7/8" x 3 7/8")
6.	AG21163	2	Large "Demco", Charcoal
7.	AG21164	2	Medium "Demco", Charcoal
8.	AG21192	1	Med. Stripes, Charcoal (left)
-	AG21193	1	Med. Stripes, Charcoal (right)

REF. NO.	PART NO.	QTY.	DESCRIPTION
9.	AG21172	2	"450", Charcoal
10.	BH21003	1	Brake Lever Indicator, Red/Green
11.	AG21002	1	"Caution, 20 MPH" (2" x 3 7/8")
12.	AG21070	1	"Attention: Don't Turn Sharp" (2" x 4")
13.	AG21001	1	"Tire Load Rating" (4 1/2" x 6")
14.	AG21127	2	"Caution Check All Wheel Nuts"

Decals are not shown to scale

Please order replacement parts by PART NO., DESCRIPTION and COLOR.

BOLT TORQUE

TORQUE DATA FOR STANDARD NUTS, BOLTS, AND CAPSCREWS.

Tighten all bolts to torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt chart as guide. Replace hardware with same grade bolt.

NOTE: Unless otherwise specified, high-strength Grade 5 hex bolts are used throughout assembly of equipment.



Torque Specifications

Bolt Torque for Standard bolts *

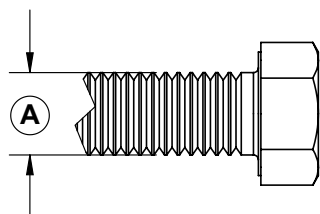
"A"	GRADE 2		GRADE 5		GRADE 8	
	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
1/4"	6	(8)	9	(12)	12	(16)
5/16"	10	(13)	18	(25)	25	(35)
3/8"	20	(27)	30	(40)	45	(60)
7/16"	30	(40)	50	(70)	80	(110)
1/2"	45	(60)	75	(100)	115	(155)
9/16"	70	(95)	115	(155)	165	(220)
5/8"	95	(130)	150	(200)	225	(300)
3/4"	165	(225)	290	(390)	400	(540)
7/8"	170	(230)	420	(570)	650	(880)
1"	225	(300)	630	(850)	970	(1310)

Bolt Torque for Metric bolts *

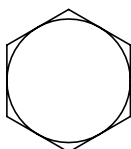
"A"	CLASS 8.8		CLASS 9.8		CLASS 10.9	
	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
6	9	(13)	10	(14)	13	(17)
7	15	(21)	18	(24)	21	(29)
8	23	(31)	25	(34)	31	(42)
10	45	(61)	50	(68)	61	(83)
12	78	(106)	88	(118)	106	(144)
14	125	(169)	140	(189)	170	(230)
16	194	(263)	216	(293)	263	(357)
18	268	(363)	--	--	364	(493)
20	378	(513)	--	--	515	(689)
22	516	(699)	--	--	702	(952)
24	654	(886)	--	--	890	(1206)

Torque figures indicated are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

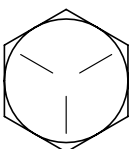
* GRADE or CLASS value for bolts and capscrews are identified by their head markings.



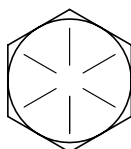
GRADE-2



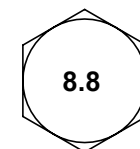
GRADE-5



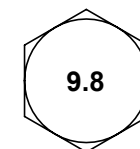
GRADE-8



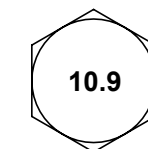
CLASS 8.8



CLASS 9.8



CLASS 10.9

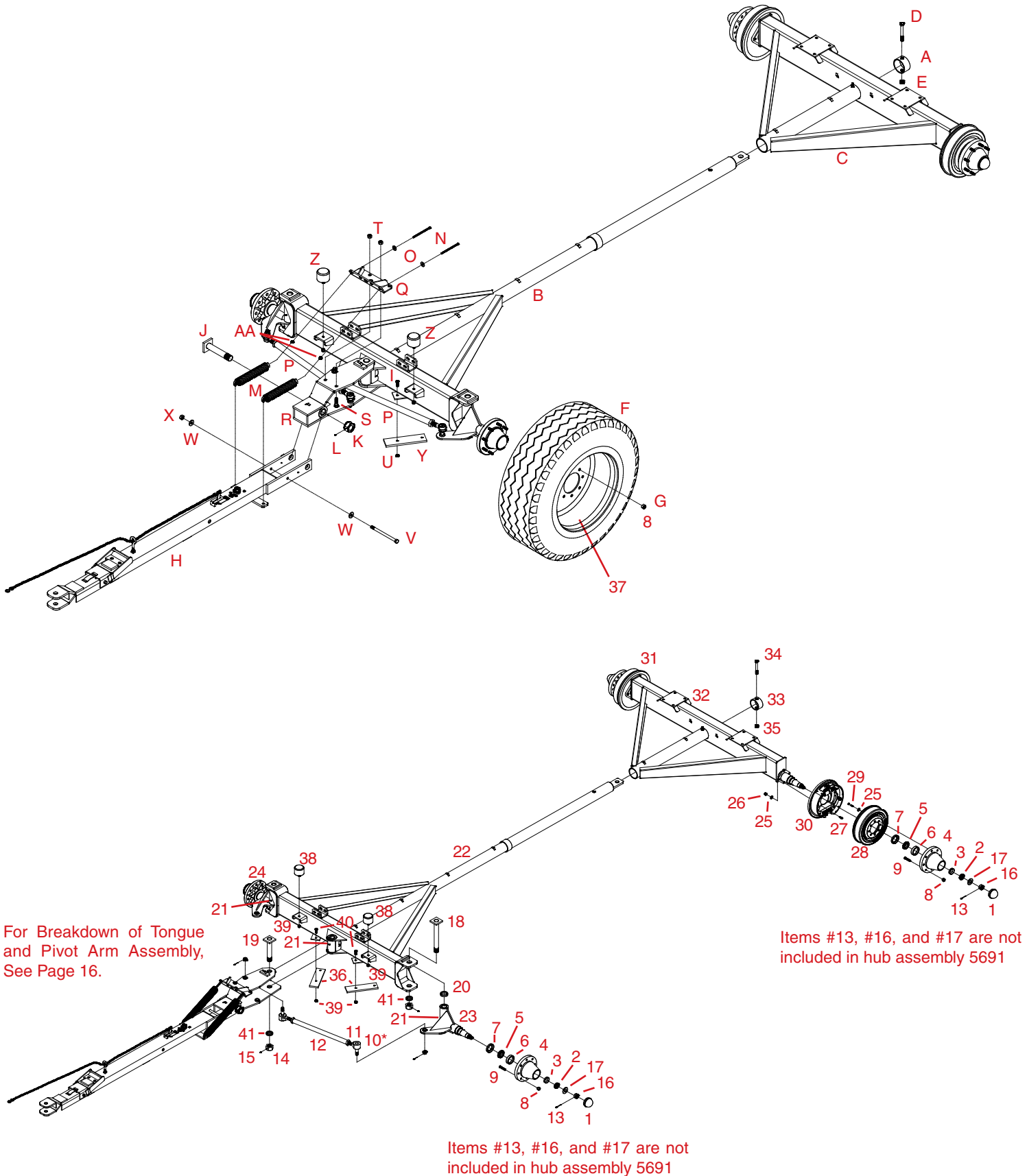


Wheel Bearing Adjustment

1. Tighten castle or slotted hex nut to initial torque indicated on chart while turning hub in both directions to insure all bearing surfaces are in contact.
2. Back nut off and repeat step #1.
3. Back nut off, do not allow hub to turn.
4. Tighten nut to final torque indicated on chart.
5. Install cotter pin, if needed loosen or tighten nut to the next closest locking slot.
6. Check hub for end play.
7. If end play can be felt, start over and readjust bearings. If end play is felt again, try readjusting with a different castle or slotted hex nut.
8. The bearings are set correctly when no end play can be felt after adjustment.

Hub	Initial Toque	Final Torque
8 bolt	75 ft/ lbs	35 ft/lbs

RUNNING GEAR PARTS BREAKDOWN



RUNNING GEAR PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
	5691	4	Wheel Hub Assembly
1.	01933	1	Dust Cap
2.	01937	1	Outer Cone Bearing (LM501349)
3.	01938	1	Outer Cup (LM501310)
4.	-----	1	8 Bolt Hub (W80-8) (NOT SOLD SEPARATELY)
5.	01942	1	Inner Cone Bearing (JLM506849)
6.	01943	1	Inner Cup (JL506810)
7.	01944	1	Oil Seal (CR27362)
8.	10971	8	5/8" UNF Flanged Wheel Nut
9.	10151	8	5/8"-18 UNF x 2-1/2" Stud Bolt (for W80-8 hub)
*10.	5182	2	Tie Rod End w/ Left Hand Threads
*10.	5183	2	Tie Rod End w/ Right Hand Threads

11.	01948	2	1"-16UNF Left Hand Jam Nut
-	01949	2	1"-16 UNF Right Hand Jam Nut
12.	01950-30	2	Tie Rod (Black)
13.	00191	4	Cotter Pin .188 x 1.50
14.	01922	3	1 1/2" Hex Nut w/ Set Screw Hole
15.	01923	3	1/4" Socket Head Set Screw
16.	01934	4	1" Slotted Hex Nut f/ W80-8 spindle
17.	01936	4	2.25" Case Hardened Flat Washer
18.	01947-30	2	1.50" x 12.5" Spindle Mounting Pin (Black)
19.	01953-30	1	1.50" x 9.0" Pivot Arm Mounting Pin (Black)
20.	02046	2	Thrust Bearing
21.	04642	3	1/4" Grease Zerk
22.	10991-30	1	Front Bolster (Black) (includes zerk)
23.	10753-30	1	Left Front Spindle (Black) (includes zerk)
24.	10754-30	1	Right Front Spindle (Black) (includes zerk)
25.	00084	24	1/2" Lock Washer
26.	00152	8	1/2" NF Hex Nut
27.	02010	8	1/2"-20 UNF x 1.00" Hex Head Bolt Gr. 5
28.	03532	2	13" Brake Drum
29.	05031	16	1/2"-20 UNF x 1.25" Hex Head Bolt Gr. 5
30.	07910	1	13" Uni-Servo Left Brake Cluster
31.	07911	1	13" Uni-Servo Right Brake Cluster
32.	10992-30	1	Rear Bolster (Black)
33.	01135-30	1	4" OD Collar (Black)
34.	01336	1	5/8"-11 UNC x 5" Hex Head Bolt Gr. 5
35.	02587	1	5/8" NC Nylon Locknut
36.	10797-30	2	Turn Stop, Bolt on (Black)
37.	11291-15	4	22.5 x 13.5 8 Bolt Rim (Yellow)
-	11291-60	4	22.5 x 13.5 8 Bolt Rim (Charcoal)
38.	10443	2	Rubber Bumper
39.	02178	6	1/2" NC Nylon Locknut
40.	01254	4	1/2"-13UNC x 1 1/2" Hex Head Bolt Gr. 5
41.	09510	3	Spacer Bushing

Please order replacement parts by PART NO., DESCRIPTION and COLOR.

* This kit includes tie rod ends (specify left or right hand threads), grease zerk, rubber cup, cotter pin, castle nut, and flat washers.

ASSEMBLY INSTRUCTIONS

MOUNTING THE WHEELS, AND ASSEMBLING THE FRONT AND REAR BOLSTER FRAMES

1. Slide Front Bolster Reach Tube (B) into Rear Bolster Receiver Tube (C). Slide on Lock Collar (A) until holes line up and bolt together using one 5/8" x 5" Bolt (D) and one 5/8" Nylon Locknut (E).
2. Mount the Tire and Rim (F) to the front and rear bolster using thirty-two 5/8" Flanged Wheel Nuts (G), and thirty-two 5/8" x 2-1/2" Stud Bolts.

TIGHTEN ALL BOLTS (SEE TORQUE CHART ON PAGE 4.)

INSTALLING THE TONGUE AND THE LIFT ASSIST SPRING

1. Mount the Tongue (H) onto the pivot arm (R), fasten together using one 1-1/2" Dia. x 8 5/8" bolt (J) and one 1-1/2" nut (K). Tighten just enough to take out all slack and hold nut in place using one 1/4" x 1/4" socket set screw (L).
2. Insert 1/2" x 7 1/2" Bolt (V) through tongue as shown using one 1/2" Nylon Insert Locknut (X) and two 1/2" Flat Washers (W). Tighten bolt until all slack is removed between the tongue and Pivot Arm (R). Do not overtighten, the tongue should still move freely. Raise the tongue and support on a stand.
3. Mount the Lift Assist Plate (Q) onto the top of the Pivot Arm (R) using two 5/8" x 2" Bolts (S) and two 5/8" Nylon Insert Locknuts (T).
4. Attach the Lift Assist Springs (M) to the Lift Assist Plate (Q) by threading the two 1/2" x 6" Full Thread Bolts (N) with two 1/2" Hex Nuts (AA) and two 1/2" Lock washers (O) into the threaded insert in the springs (M). Tighten the bolts to remove any slack. Remove the stand and adjust the tongue height using the two 1/2" x 6" bolts.
5. Mount the Turn Stop Plates (Y) to the Front Bolster (B) using four 1/2" x 1 1/4" Bolts (I) and four 1/2" Nylon Insert Locknuts (T).

ADJUSTING THE TIE RODS FOR ALIGNMENT

1. Alignment is preset at the factory. To check alignment, the Tie Rods (P) should be adjusted to have 1/4" to 3/8" toe in (measured at tire bead edge of rim). When this adjustment is made, the tongue must be aligned with the reach pipe. Be sure both wheels toe in equally.

DEMCO BRAKE TONGUE MAINTENANCE AND ADJUSTMENT



WARNING

Review all of the following instructions before installation and use of the hydraulic brake tongue. Dealers or Distributors must review these instructions with the ultimate user. Failure to follow these instructions, or failure to properly maintain the braking system after installation, can result in loss of braking action which could cause severe property damage, personal injury and/or death.

DISASSEMBLY AND REASSEMBLY

1. The brake tongue is preassembled and adjusted at the factory:



CAUTION

Do Not Disassemble or Attempt to Adjust The Tongue Push-Rod Assembly (#37)

To disassemble the tongue: (refer to illustration on page 16)

- A. Remove 1/2" bolts (#44), remove stop block (#10), and pull male tongue (#20) out of female tongue (#38).
- B. Remove 1/2" bolt (#28), pin (#33), and spacer (#34)
- C. Remove set screw (#12) from adjustment spud (#25b), unthread and remove adjustment spud (#25b).
- D. Remove push-off assembly (#36), pin (#35), two shocks (#40), and two springs (#32).
- E. To remove tongue push-rod assembly (#37), master cylinder (#29), emergency lever (#31), pin (#46), spring (#18), and guide (#14), refer to section a&b of "Servicing the Emergency Lever" on this page.

To reassemble the tongue: (refer to illustration on page 16)

- A. Replace 2 shocks (#40) into yoke (#36), with pin (35).
 - B. Place 2 springs (#32), onto shaft of push-off assembly (#36), and insert shaft into female tongue (#38), through hole in plate (shown in exploded view).
 - C. Thread adjustment spud (#25b) onto rear threaded portion of push-rod assembly (#36), until the 2 springs (#32) compress to a length of 6-1/2". Install and tighten set screw (#12), using Locktite, into one of the threaded holes of the spud (25b).
 - D. Insert pin (#33) into hole in tongue, through 1 shock (#40), through the spacer (#34), and through the other shock (#40) and tongue. Install and tighten 1/2" bolt, lock washer, and washer (#28, 3, 4).
 - E. Install master cylinder (#29), (refer to c-f of "Servicing Emergency Lever" section on this page).
 - F. Thread adjust spud (25a) onto front threaded portion of push-rod assembly (#36). Insert male tongue (#20), (with latch installed as shown), into female tongue (#38). Install stop block (#10), using 1/2" bolts and lock washers (#44, #3). Pull male tongue (#20) forward to latched position and adjust spud (#25a) until there is a 7/16" gap between spud (#25a) and rear stop surface of male tongue (#20) see arrow.
 - G. Tighten set screw (#24), using Locktite, into hole in spud (#23a).
2. Connect and tighten all brake lines. (Brake lines are shown on page 18.)
 3. Fill the Master Cylinder (#29) with DOT 3 or 4 brake fluid.
 4. Bleed the brake system using a pressure-type brake bleeder or manually, as follows:
 - A. Remove the two Self-Tapping Screws (#13) and Lock washers (#17) that hold the Lever Guide (#14) and the flat Emergency Lever Spring (#18). Remove the Lever Guide and the Emergency Lever Spring. Using short strokes, pull forward on the Emergency Lever (#31), pumping the Master Cylinder until the brake fluid within the Master Cylinder stops bubbling.

- B. Attach a bleeder hose to the bleeder valve on one of the wheels (always begin with wheel farthest from the master cylinder and move toward it). Immerse the other end of the hose into a clean, transparent container partially filled with brake fluid. Loosen the bleeder valve one turn and, watching the hose in the transparent container, use the Emergency Lever to pump the Master Cylinder as long as air bubbles continue to leave the hose. When the repeat the process until all the brakes have been bled. (Note: Check the fluid level in the Master Cylinder frequently while bleeding the brakes (every 4 or 5 strokes). Refill as necessary to keep the level above half full.)
5. Once bleeding is completed, refill the Master Cylinder and attach the Cap (#15) securely. Replace Emergency Lever Spring, Lever Guide, with Lock Washers and Self-Tapping Screws.
 6. Test the brakes by pulling the Emergency Lever (#31) forward until it locks into its first detent position. (The lever should be approximately straight up.) Attempt to rotate the wheels in a forward direction. If any of the wheels rotate, the brakes must be adjusted on that wheel. To adjust the brakes, release the Emergency Lever from its locked position and set the wheel brake adjustment up 2 or 3 notches (refer to instructions on page 12). Repeat the test procedure as necessary.

MAINTENANCE

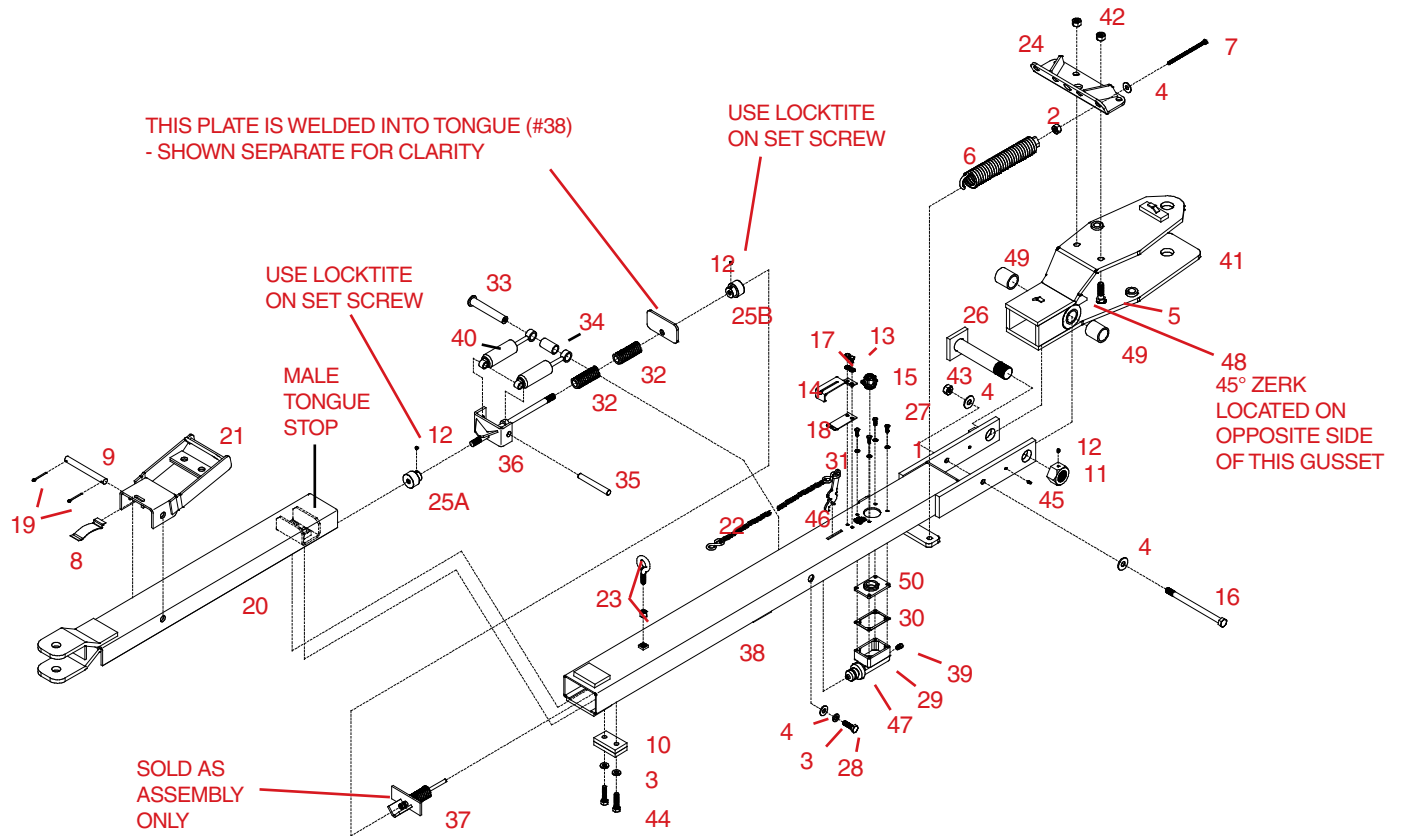
1. Frequently check the brake fluid level. (Fluid must be approved, clean and uncontaminated.)
2. Inspect the brake tongue and brakes and replace bent, worn or damaged parts.
3. Be constantly aware of the system's braking quality and make periodic checks. Consult a certified brake specialist to make the necessary adjustments and/or repairs. Failure to do so could result in loss of braking.

SERVICING THE EMERGENCY LEVER

If the Emergency Lever (#31) of the tongue is applied, it can be disengaged by using a screwdriver to lift upward on the front of the flat Emergency Lever Spring (#18) while pulling the lever forward until it releases. A thorough inspection of the Emergency Lever, Emergency Lever Spring, and the Chain with S-Hooks is required and all damaged parts must be replaced as follows:

- A. Remove the Master Cylinder (#29) and the Push Plate Assembly (#37). Be careful not to get dirt into the Master Cylinder. (A new Master Cylinder Gasket (#30) should be used when reinstalling.)
- B. Remove the Safety Chain from the Emergency Lever (#31), Emergency Lever Guide (#14), and flat Emergency Lever Spring (#18), then pull the lever out of the tongue (#38) from the bottom.
- C. Install the new Emergency Lever from the bottom of tongue and up through the slot in the tongue. Attach the new Emergency Lever Spring, and the Emergency Lever Guide.
- D. Install a new Master Cylinder Gasket to the Master Cylinder and put the Push Plate Assembly and Master Cylinder back into the inside of the tongue.
- E. Squeeze shut the S-Hook of the Emergency Chain (#22) onto the Emergency Lever (#31).
- F. Add adequate brake fluid to the Master Cylinder and bleed the brake system per instructions 4-6 in the disassembly and reassembly section.

BRAKE TONGUE PARTS BREAKDOWN



PARTS LIST

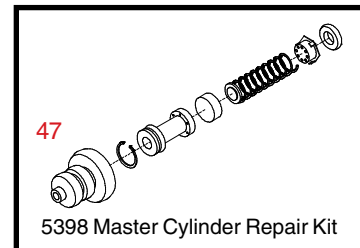
REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	00057	4	1/4" Lock Washer
2.	00083	2	1/2" NC Hex Nut
3.	00084	3	1/2" Lock Washer
4.	00085	5	1/2" Flat Washer
5.	00290	2	5/8"-11UNC x 2" Hex Head Bolt Gr. 5
6.	00306-30	2	Tongue Lift Assist Spring w/ Insert (Black)
7.	00545	2	1/2"-13 UNC x 6" Hex Head Bolt (Full Thread)
8.	01158-95	1	Hitch Spring (Plated)
9.	01159-95	1	Hitch Lock Pin (Plated)
10.	01160-30	1	Male Tongue Stop Plate (Black)
11.	01922	1	1 1/2"-12 UNF Hex Nut w/ Set Screw Hole
12.	01923	3	1/4" NC x 1/4" Socket Head Set Screw
13.	02196	2	5/16" NC x 3/4" Hex Head Bolt, Thread Cutting
14.	03866-95	1	Emergency Lever Guide (Plated)
15.	03876	1	3-Tab Fill Cap w/ Diaphragm & O-Ring
-	03877	-	Diaphragm Replacement
-	05849	-	O-Ring Replacement
16.	10823	1	1/2"-13 UNC x 7.5" Hex Head Bolt Gr. 5
17.	05424	2	5/16" External Tooth Lock Washer
18.	05693-95	1	Safety Lever Spring (Plated)
19.	07876	2	1/8" x 1 1/4" Cotter Pin
20.	12224-30	1	Tongue Hitch, Male Half (Black)
21.	09297-30	1	Tongue Latch (Black)
22.	09309	1	72" Actuator Chain/Hook Assembly
23.	09317	1	1/2" NC x 2" Eye Bolt w/ Nut
24.	09326-30	1	Lift Assist Bracket
25.	09337	2	Adjustment Spud (a & b)
26.	10748-30	1	Tongue Pull Bolt (Black)
27.	01076	4	1/4"-20 UNC x 3/4" Hex Head Bolt Gr. 5
28.	04795	1	1/2"-13 UNC x 1" Hex Head Bolt Gr. 5
29.	5650	1	Master Cylinder w/ Gasket 09153
30.	09153	-	Master Cylinder Gasket (included in 5650)
31.	05951	1	Emergency Lever

REF. NO.	PART NO.	QTY.	DESCRIPTION
32.	05952	2	Spring f/ Plunger Assembly
33.	09301	1	Rear Shock Pin
34.	09302	1	Spacer f/ Rear Shock Pin
35.	09303	1	Front Shock Pin
36.	09304	1	Push Off Assembly
37.	09306	1	Push Plate Assembly
38.	10747-30	1	Tongue Hitch, Female Half (Black)
39.	SB12099	1	Connector Orifice (.031)
40.	SB12426	2	Damper
41.	10749-30	1	Pivot Arm (Black)
42.	02587	2	5/8" NC Nylon Insert Locknut
43.	02178	1	1/2" NC Nylon Insert Locknut
44.	01253	2	1/2"-13 UNC x 2" Hex Head Bolt Gr. 5
45.	04642	2	1/4"-28 UNF Grease Zerk
46.	05694	1	Groove Pin (included in 05951)
47.	05687	1	Master Cylinder Protective Boot
48.	05395	1	45° Grease Zerk
49.	01951	2	Bronze Bushing
50.	12557	1	Master Cylinder Cap

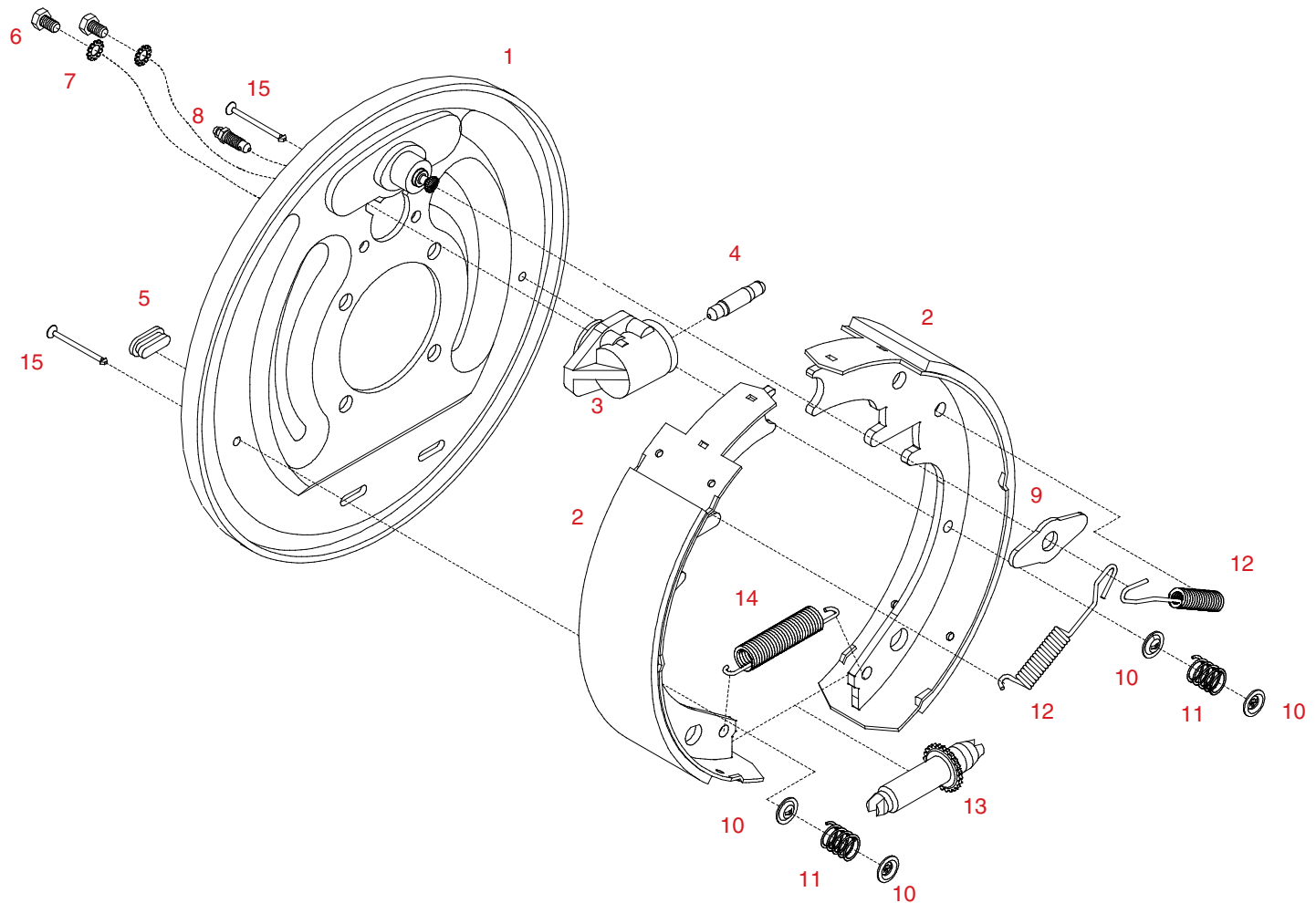
Please order replacement parts by PART NO., DESCRIPTION, and COLOR.

KIT NUMBERS

- 5398 - Master Cylinder Repair Kit w/gasket



13" UNI-SERVO BRAKE CLUSTER PARTS BREAKDOWN



BRAKE CLUSTER PARTS LIST

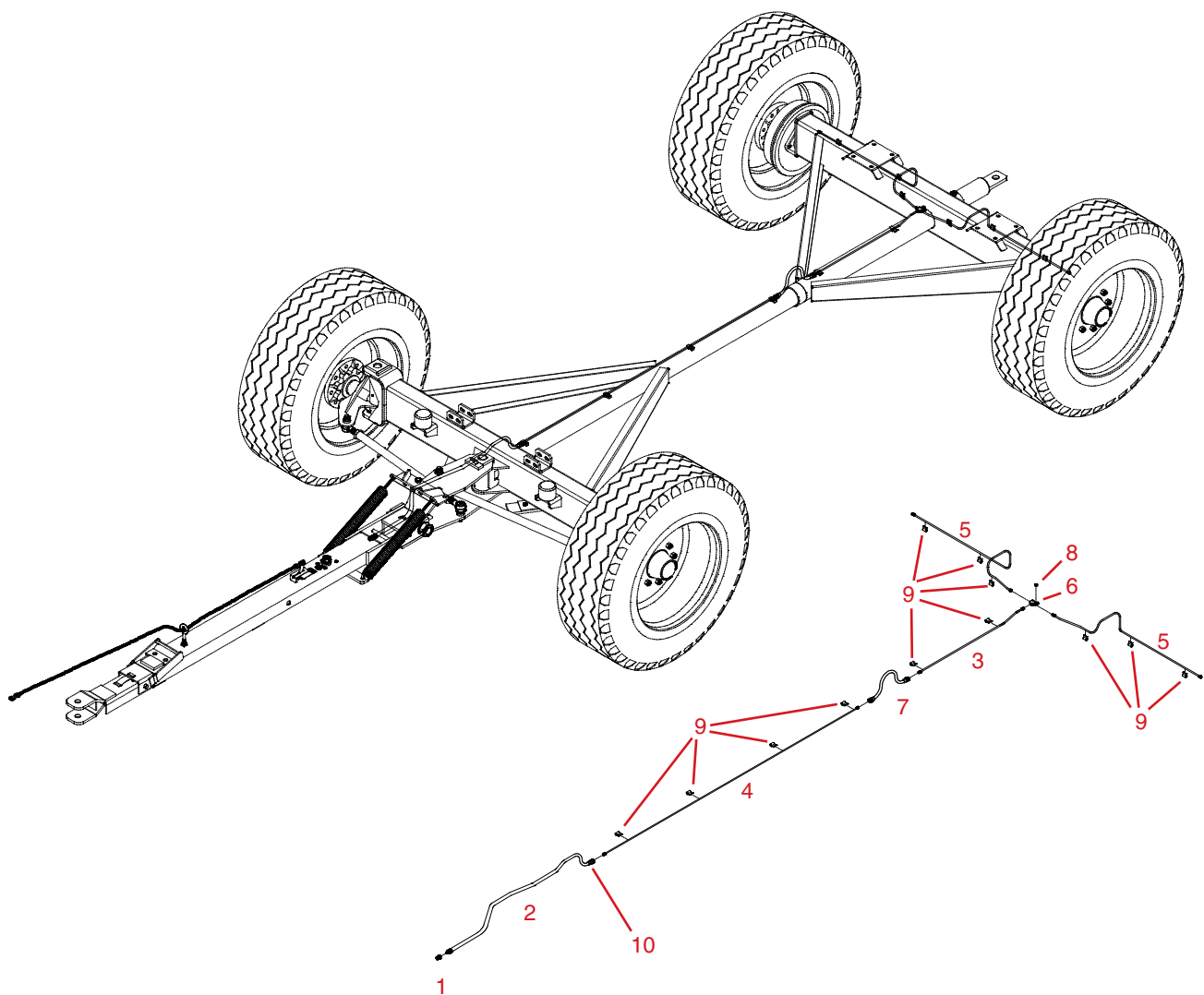
REF. NO.	PART NO.	QTY.	DESCRIPTION
-	07910	-	Left Hand Cluster
-	07911	-	Right Hand Cluster (shown above)
1.	03529-80	1	Back Plate Assembly (Black)
2.	5509	1	Shoe Assembly
3.	SB9776M	1	Wheel Cylinder Assembly - Right
-	SB9777M	1	Wheel Cylinder Assembly - Left (not shown)
4.	SB9783	1	Push Rod
5.	SB9254	2	Adjusting Hole Grommet
6.	05961	2	5/16"-18UNC x 5/8" Hex Head Bolt Gr. 5
7.	05424	2	5/16" External Tooth Washer
8.	05431	1	Bleeder - Replacement

BRAKE CLUSTER PARTS LIST

9.	SB10961-95	1	Shoe Guide
10.	SB9789	4	Cup - Shoe Hold Down
11.	05983	2	Spring - Shoe Hold Down
12.	SB9786	2	Spring - Shoe
13.	SB23324	1	Adjusting Screw Assembly
14.	SB24765	1	Spring - Adjusting Screw
15.	SB9788	2	#6 Hold Down Pin
-	SB15845	1	Wheel Cylinder Repair Kit (includes spring, cup and boot)

Please order replacement parts by PART NO. and DESCRIPTION.

RUNNING GEAR BRAKE LINE PARTS BREAKDOWN



1. Assemble the running gear.
2. Mount the Rear Brass Tee (#6) onto the bolt welded to the top of the rear bolster frame using one 5/16" nylon insert locknut (#8).
3. Next attach the 52" Rubber Line (#2) to the orifice fitting on the master cylinder.
4. Attach the 52" Rubber Brake Hose (#2) to the 72" Steel Brake Line (#4), and bend the 72" Steel Line (#4) around the front bolster frame to fit (as shown).

NOTE: When bending steel lines, form around a 3/4" diameter pin. Be careful not to make the bend too sharp or line failure will occur.

5. Assemble 44" Rear Steel Lines (#5) to the brake cluster first. Then bend around the top of the rear bolster frame and attach to the Rear Brass Tee (#6) as shown. Now attach 30" Steel Line (#3) to center of outlet on Brass Tee (#6) along reach pipe.

BRAKE LINE PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	SB12099	1	Orifice Connector (.031) for Master Cyl.
2.	05979	1	#6 X 52" Rubber Brake Line
3.	SB530	1	3/16" X 30" Steel Brake Line
4.	SB572	1	3/16" X 72" Steel Brake Line
5.	SB544	2	3/16" X 44" Steel Brake Line
6.	SB7785	1	Brake Line Tee Fitting
7.	SB13H66	1	#6 X 13" Rubber Brake Line
8.	02802	1	5/16"-18 UNC Nylon Insert Locknut
9.	02549	12	Rubber Protector (for steel lines)
10.	SBD10	1	Fitting Union .188 Female

Please order replacement parts by PART NO. and DESCRIPTION

6. Assemble 13" Rubber Line (#7) between the 30" Steel Line (#3), and the 72" Steel Front Brake Line (#4) allowing some slack.
7. Put Rubber Line Protectors (#9) around steel lines at clips and bend clips down.

Brake System Repair & Maintenance



WARNING

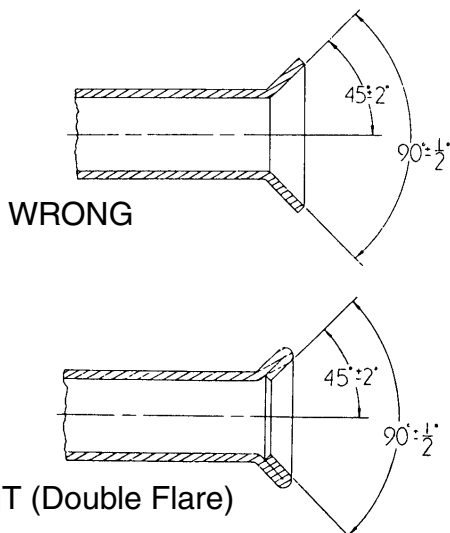
DEALERS, OR DISTRIBUTORS MUST REVIEW THESE INSTRUCTIONS WITH THE ULTIMATE USER. FAILURE TO FOLLOW THESE INSTRUCTIONS, OR FAILURE TO PROPERLY MAINTAIN BRAKES AFTER INSTALLATION, CAN RESULT IN LOSS OF BRAKING ACTION. THIS CAN CAUSE PERSONAL INJURY, DEATH OR PROPERTY DAMAGE. ONLY PROFESSIONAL MECHANICS SHOULD INSTALL BRAKE COMPONENTS. HAVE YOUR BRAKES INSPECTED BY A PROFESSIONAL MECHANIC A MINIMUM OF ONCE A YEAR AFTER INSTALLATION.

Backplate Installation

Mount the backplate to the spindle flange. In mounting the brake, be sure the hydraulic wheel cylinder is at the top. Brakes are also marked as "RIGHT" and "LEFT". The brake designated as "LEFT" travels on the driver's side of the road.

Brake Line Installation

Use care in forming tubing to avoid sharp bends or kinks. Use double flare steel tubing to assure tight leakproof connections. This must be done by a certified brake shop. Anchor all hydraulic lines at two foot intervals to prevent chafing and vibration. Use hydraulic rubber hose at points of flexing. Anchor hose ends to avoid stress on tubing.



Brake Adjustment

Before removing the ground stand jacks, adjust the brakes. Uni-servo brakes must be adjusted periodically to assure having brakes when they are applied. Insert a brake adjusting tool or a screwdriver into the slotted hole. With the handle up and the bit down and against the adjusting nut, pull down on the handle. While spinning the wheel adjust the cog wheel up until you cannot rotate the wheel forward. Then back off the adjusting wheel twenty notches.

ALWAYS ROTATE DRUM IN DIRECTION OF FORWARD ROTATION ONLY.

Brake Drum Maintenance

Brake drums must be reground if abnormal wear is found, such as brake shoe hitting brake drum once lining is gone, rivets hitting brake drums and or brake drums out of round. NOTE: Maximum diameter allowed 13.060"

Brake Setup

1. Attach brake line to master cylinder outlet. Make sure all connections are tight.
2. Fill the master cylinder from a sealed container of DOT 3 or 4 brake fluid. A pressure type brake bleeder may be used. If one is not available, you can bleed the system manually as follows.
3. After the master cylinder has been filled, remove the flat spring behind the emergency lever. Pull forward on the lever to pump the master cylinder. Use short strokes until bubbling stops in the master cylinder.

Bleed the rear axle first. Install bleeder hose on the bleeder valve on the first wheel with other end of the hose in a clear container partially filled with brake fluid.

Hitching The Wagon

Loosen the bleeder valve one turn and pump the master cylinder until the air bubbles stop coming out of the hose in the glass container, then close the bleeder valve and repeat the process on the other wheels. (Watch the fluid level in the master cylinder and refill so level does not fall below 1/2 full). Refill master cylinder every 4 or 5 strokes. Dispose of contaminated brake fluid according to local regulations.

4. After bleeding is completed, refill the master cylinder and put the filler cap on securely. Replace the flat spring behind the emergency lever.

To test the brakes use a wrench or vise grip and clamp onto the top of the emergency lever to lengthen it. Pull lever forward until lever locks on the second click. The lever should be approximately straight up and down. Now try to rotate each wheel in a forward rotation. You should not be able to rotate the wheels forward. If you can, then release the emergency lever by wedging a screwdriver under the flat spring behind the lever and set each wheel brake adjustment up 2 or 3 notches. Then repeat the test procedure.

5. Be sure Pin and hitch rating is equal to or greater than the wagon GVWR.
6. Connect the emergency chain hook to towing vehicle.
7. If the emergency brake lever is accidentally applied while unhitching, release the lever by pulling it forward and with a screwdriver lift up the front of the flat spring until it releases the lever. Many times these parts are damaged when this happens. An inspection of the lever, flat spring, and chain with S-hooks is required and any damaged parts must be replaced.

Replacing The Emergency Lever

Step one: Remove the lever guide and flat spring. Take the S-hook off the lever, take the lever out from the inside.

Step two: Install the new lever from the inside and up through the slot. Replace the new flat spring and the lever guide. Replace the push rod and master cylinder and new gasket.

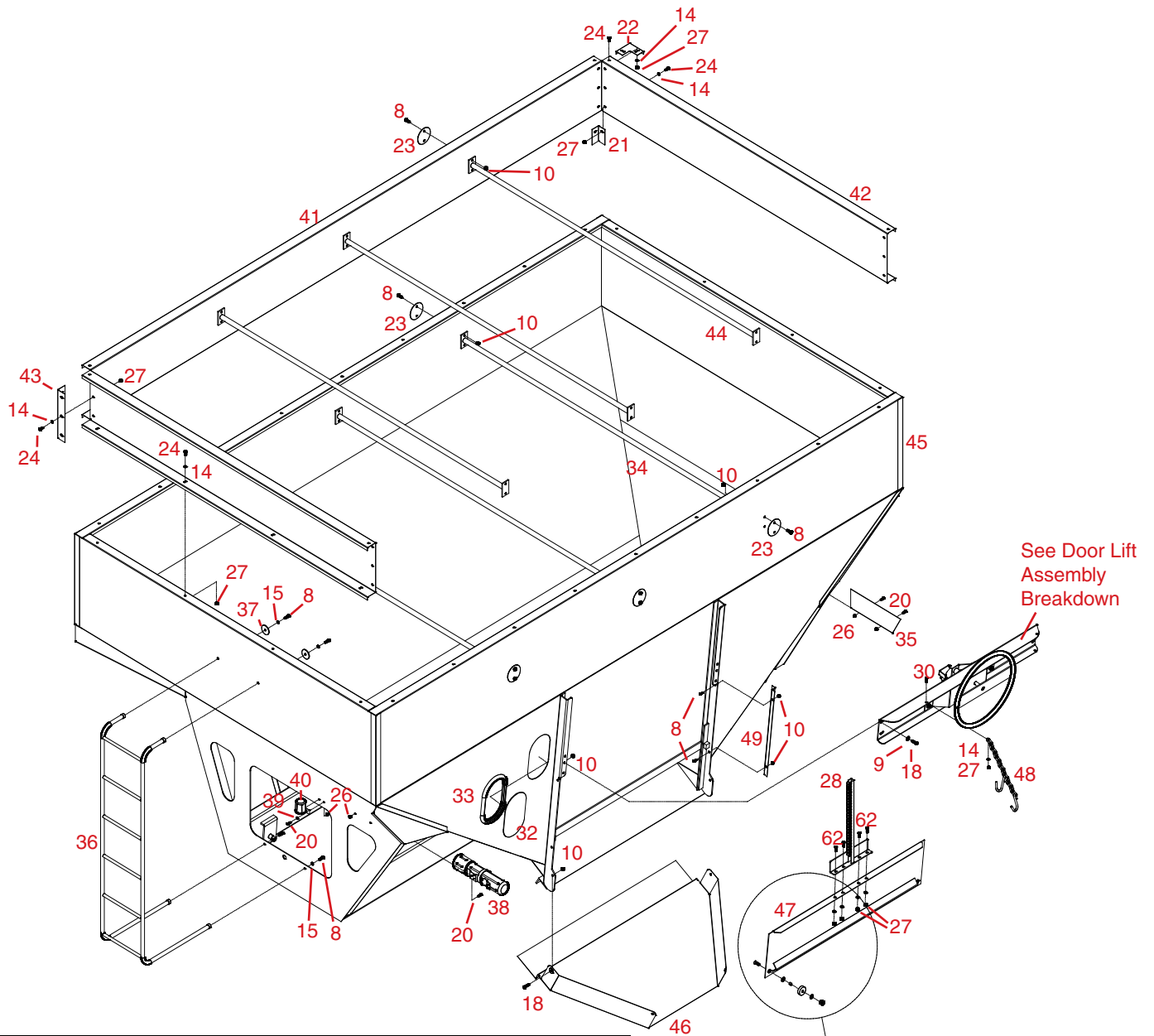
Step three: Take the new chain and fasten the S-hook to the lever by squeezing the hook shut with a pliers. Check the master cylinder and fill with DOT 3 or 4 brake fluid.

Step four: Re-bleed brake system.

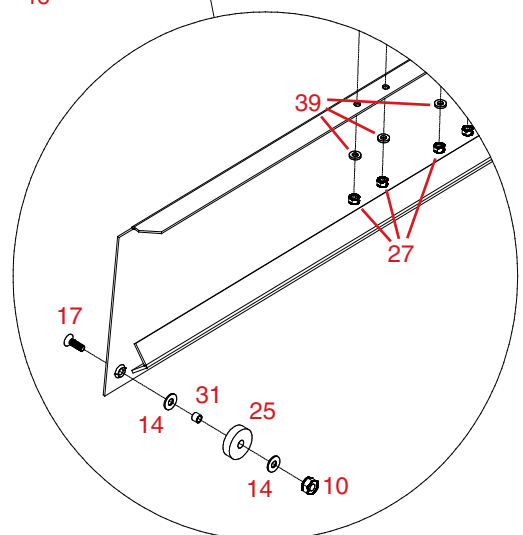
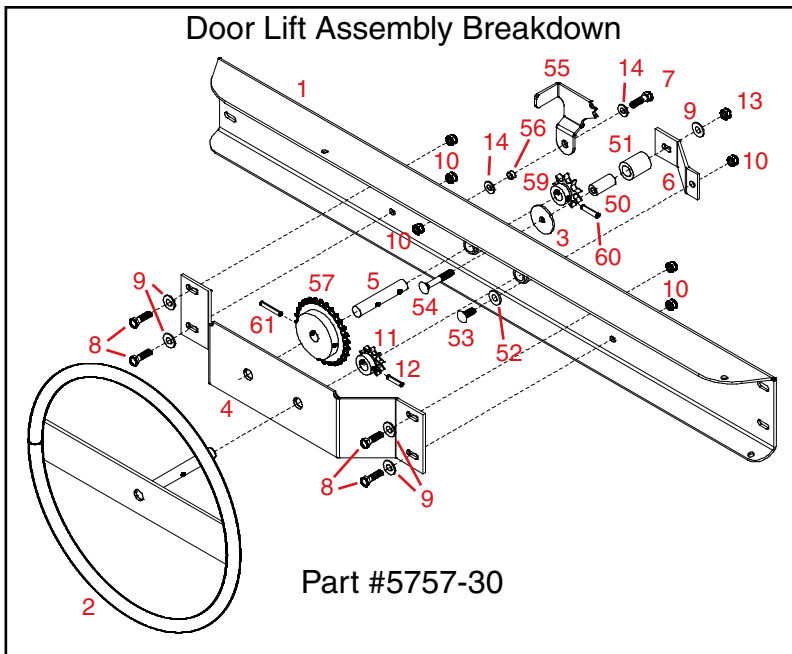
MAINTENANCE

1. Before towing check to be sure master cylinder is full of brake fluid and check lines for leaks. Inspect the actuator for bent or worn parts. Replace parts if necessary. Make sure the actuator mounting bolts are tight.
2. Periodically check braking quality, as described above. Failure to do so can result in loss of braking.
3. If units are used in corrosive conditions the actuator and wheels should be washed out with high pressure water. When actuator parts are dry, oil all moving parts.

450 BUSHEL WAGON PARTS BREAKDOWN



Door Lift Assembly Breakdown



ASSEMBLY INSTRUCTIONS

MOUNTING THE BRACE BARS & EXTENSIONS

1. Mount the Front, Back, and Side Extensions (#41 & 42) loosely to the box using twenty-six 5/16" x 3/4" bolts (#24), twenty-six 5/16" nylon locknuts (#27), and fifty-two 5/16" flatwashers (#14).
2. Mount the Extension Corner Angle (#43) to the outside of the extensions using thirty-two 5/16" x 3/4" bolts (#24), thirty-two 5/16" nylon locknuts (#27), and thirty-two 5/16" flatwashers (#14). The bottom two bolts must also hold the Inside Corner (#21) on the inside of the box as shown.
3. Mount the Corner Filler Cap (#22) under the lip on the outside of the extensions using eight 5/16" x 3/4" bolts (#24) eight 5/16" flatwashers (#14) and eight 5/16" nylon locknuts (#27).
4. Mount the inside Brace Bars (#34 & 44) to the box (#45) and side extensions (#41) with back up washers (#23) on the outside as shown using twenty-four 3/8" x 1" bolts (#8) and twenty-four 3/8" nylon locknuts (#10).

NOW TIGHTEN ALL BOLTS.

MOUNTING THE LADDER

1. Mount the top of the ladder (#36) to the gravity flow box using two 3/8" x 1" bolts (#8), two ladder washers (#37), and two 3/8" lock washers (#15) as shown. Bolt the bottom of the ladder (#36) to the subframe using two 3/8" x 1" bolts (#8) and two 3/8" lock washers (#15).

INSTALLING THE DOOR, DOOR LIFT CHANNEL, DOOR LIFT WHEEL ASSEMBLY AND TRANSPORT CHAIN

1. Attach door lift channel (#28) to door (#47) using four 5/16" x 1/2" socket head shoulder bolts (#50) and 5/16" nylon lock nuts (#27).
 2. Attach door centering wheels (#25) to door (#47) using two 3/8" x 1-1/4" flat head socket cap screws (#17), four 5/16" flatwashers (#14), two bushings (#31), and two 3/8" nylon locknuts (#10).
 3. Slide the door lift wheel mount (#5640-30) over the door lift channel (#28) and bolt it to the gravity box using four 3/8" x 1-1/4" bolts (#18), four 3/8" flatwashers (#9), and four 3/8" nylon locknuts (#10).
 4. **IMPORTANT** Tighten all mounting bolts just enough to limit movement. Adjust by raising and lowering the door. Then tighten bolts accordingly to prevent the door from binding.
 5. Bolt the transport chain (#48) to the channel on the door lift wheel mount (#1) using one 5/16" x 1" bolt (#30), one 5/16" flatwasher (#14), and one 5/16" nylon locknut (#27).
- Note:** Roller Bushing (#51) and Roller Brace Bracket (#6) are adjustable so that slack between the roller chain on (#28) and the sprocket (#59) can be kept to a minimum.

INSTALLING THE DELIVERY CHUTE

1. Mount the Unloading Chute (#46) to the box using two 3/8" x 1" bolts (#8) and two 3/8" nylon locknuts (#10). When tightening, be certain the chute moves up and down freely.
- Note:** Check all bolts and nuts to ensure proper tension and torque.

450 BUSHEL WAGON PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
5640-30 Door Lift Assembly (Black)			
1.	11686-30	1	Door Lift Wheel Mount Channel (Black)
2.	11455-30	1	Door Lift Wheel (Black)
3.	09552	1	2" O.D. x 1/4" I.D. Washer
4.	11459-30	1	Back Plate (Black)
5.	11461	1	Opener Shaft
6.	01243-30	1	Roller Brace Bracket (Black)
7.	02207	1	3/8"-16UNC x 3" Hex Head Bolt Gr.5
8.	00907	1	3/8"-16UNC x 1" Hex Head Bolt Gr.5
9.	00059	3	3/8" Flatwasher
10.	02592	6	3/8" Nylon Insert Locknut
11.	02028	1	10 Tooth Sprocket (#40 Roller Chain)
12.	03096	1	1/4" x 1-1/4" Roll Pin
13.	00179	1	3/8" Center Punch locknut
14.	00004	2	5/16" Flatwasher
50.	01114	1	3/4" OD x 3/8" ID Bushing
51.	01115-95	1	1-1/4" OD x 3/4" ID Bushing
52.	02384	1	1/2" NR Machine washer 14 Ga.
53.	02467	1	3/8" x 1" Carriage Bolt
54.	08109	1	3/8" X 2-1/2" Carriage Bolt
55.	11412-30	1	Latch
56.	11414	1	Bushing
57.	11462	1	28 Tooth #40 Chain Sprocket
58.	11463	1	#40 x 38 Links Chain (not shown)
59.	11749	1	9 Tooth #60 Chain Sprocket
60.	11750	1	5/16" x 1-1/2" Roll Pin
61.	11751	1	5/16" x 2-1/2" Roll Pin

8.	00907	30	3/8"-16 UNC x 1" Hex Head Bolt Gr. 5
9.	00059	4	3/8" Flat Washer
10.	02592	32	3/8" NC Nylon Insert Locknut
14.	00004	63	5/16" Flat Washer
15.	00060	4	3/8" Lock Washer
17.	03526	2	3/8"-16 UNC x 1-1/4" Flat Head Socket
			Cap Screw
18.	00523	6	3/8"-16 UNC x 1 1/4" Hex Head Bolt Gr. 5
19.	00914	2	3/8"-16 UNC x 1 1/2" Hex Head Bolt Gr. 5
20.	01076	8	1/4"-20 UNC x 3/4" Hex Head Bolt Gr. 5
21.	01104-30	4	Inside Corner Cap (Black)
22.	01105-30	4	Corner Filler Cap (Black)
23.	01106-30	12	Extension & Box Washer (Black)
24.	01263	58	5/16"-18 UNC x 3/4" Hex Head Bolt Gr. 5
25.	11457	2	Door Centering Wheel
26.	02772	8	1/4" NC Nylon Insert Locknut
27.	02802	63	5/16" NC Nylon Insert Locknut
28.	11748-30	1	Door Lift Channel (Black)
29.	03531	4	Plastic Spacer Bushing
30.	02990	1	5/16"-18 UNC x 1" Hex Head Bolt Gr. 5
31.	05449	2	Bushing
32.	07276	1	Plexiglas Window
33.	07310	1	Window Gasket Seal
34.	10000-30	3	Box Brace Rod (Black)
35.	10204-30	1	Left Light Cover (Black)
-	10206-30	1	Right Light Cover (Black) (not shown)
36.	10212-30	1	Ladder (Black)
37.	10231-95	2	Ladder Washer (Plated)
38.	10241	1	Owner's Manual Canister
39.	00214	6	1/4" Flat Washer
40.	10277	1	Electrical Plug Holder
41.	10692-30	2	Side Extension (Black)
42.	10693-30	2	Front and Back Extension (Black)
43.	10738-30	4	Extension Corner Angle (Black)
44.	10739-30	3	Extension Brace Rod (Black)
45.	10980-10	1	450 Gravity Flow Box (Red)
-	10980-20	1	450 Gravity Flow Box (Green)
46.	10765-30	1	Unloading Chute (Black)
47.	11685-30	1	Unloading Door (Black)
48.	10772	1	Transport Chain
49.	10784-30	1	Chute Light Wire Tube (Black)
62.	12568	4	3/8" (.31-18) x 1/2" Socket Head Shoulder Bolt

Please order replacement parts by PART NO., DESCRIPTION and COLOR.



CAUTION

MAINTENANCE AND GENERAL OPERATIONS OF GRAVITY WAGON

To prevent personal injury or property damage, all users of this equipment should read, understand, and follow these instructions.

* Never overload wagon. The rating of the GF450 gear is 30,000 lbs. or the rating of the tires, whichever is less. Overloading wagon is dangerous and can cause extensive damage to both the box and running gear.

* Never add more sideboards or extensions to the gravity box, beyond the standard factory manufactured parts, as the box is not designed to handle the added weight.

* Check box periodically for cracks in welds and other structural damage. Have cracked welds fixed immediately. Failure to do so could result in extensive damage to the gravity box and thus greatly reduce life of box.

* When pulling gravity box and running gear, be sure that it is fastened securely to tractor. Also connect the emergency brake chain to towing vehicle and be sure lighting is connected and working properly.

* Be sure to read all warnings, caution, and important labels on equipment, they are designed for your safety and for longer life of equipment.

* Periodically check all bolts and nuts to ensure proper tension or torque. Torque lug nuts daily.

* Grease all zerks before each use using a good quality lubricant .

* Before towing be sure master cylinder is full of brake fluid and check lines for leaks. Inspect the actuator for bent or worn parts. Replace parts if necessary. Make sure the actuator mounting bolts are tight.

* Periodically check braking quality. If you think they are a little soft, check the movement on the actuator. If it moves more than 7/8", the brake shoes need to be adjusted. Failure to do so can result in loss of braking.

* If units are used in corrosive conditions the actuator and wheels should be washed out with high pressure water. When actuator parts are dry, oil all moving parts and repack wheel bearing.

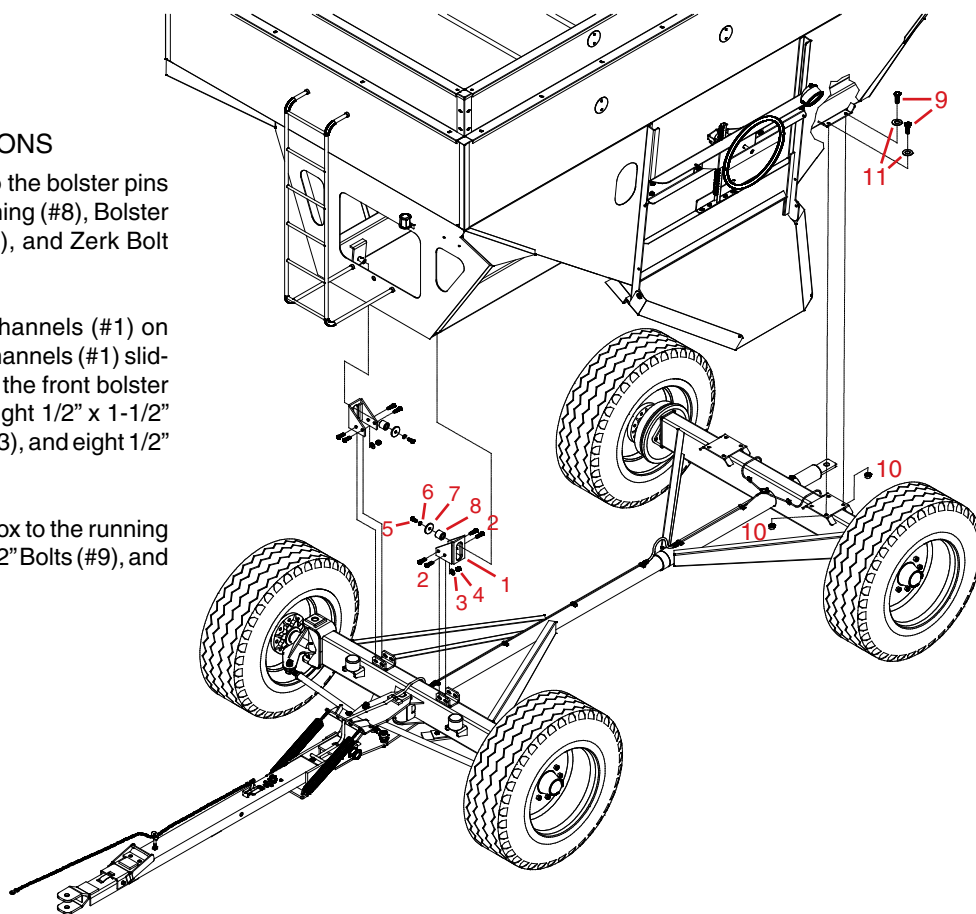
* Do not exceed 50 P.S.I. when using truck tires on the wagon.

Periodic servicing of this unit will greatly prolong its usable life.

MOUNTING THE WAGON TO THE RUNNING GEAR ASSEMBLY

ASSEMBLY INSTRUCTIONS

1. Attach the Bolster Channels (#1) to the bolster pins on the subframe using Bolster Bushing (#8), Bolster Washer (#7), 1/2" Lockwasher (#6), and Zerk Bolt (#5).
2. Now Place box with the Bolster Channels (#1) on the running gear with the Bolster Channels (#1) sliding over the mounting channels on the front bolster frame (as shown). Secure using eight 1/2" x 1-1/2" Bolts (#2), eight 1/2" Flatwashers (#3), and eight 1/2" Locknuts (#4).
3. Secure the rear of the gravity flow box to the running gear as shown using eight 1/2" x 1 1/2" Bolts (#9), and eight 1/2" Locknuts (#10).



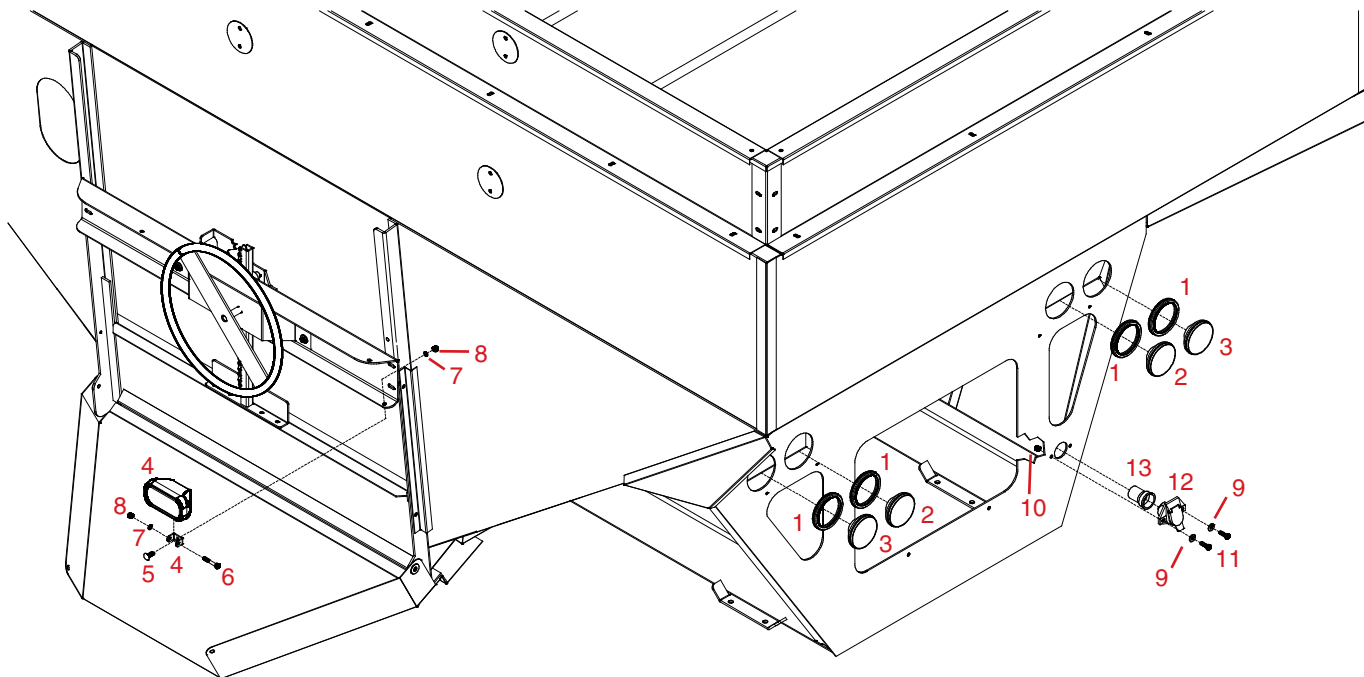
PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	07384-30	2	Bolster Channel (Black)
2.	01254	8	1/2" - 13 UNC x 1-1/2" Hex Head Bolt
3.	00085	8	1/2" Flatwasher
4.	02178	8	1/2" - 13 UNC Nylon Insert Locknut
5.	05570	2	Zerk Bolt

REF. NO.	PART NO.	QTY.	DESCRIPTION
6.	00084	2	1/2" Lockwasher
7.	07385-95	2	Bolster Washer (Plated)
8.	07386	2	Bolster Bushing
9.	01254	8	1/2" - 10 UNC x 1 1/2" Hex Head Bolt
10.	02178	8	1/2" - 10 UNC Nylon Insert Locknut
11.	00085	8	1/2" Flat washer

Please order replacement parts by PART NO., DESCRIPTION and COLOR.

LIGHT KIT PARTS BREAKDOWN AND LIST



INSTALLING THE LIGHT KIT

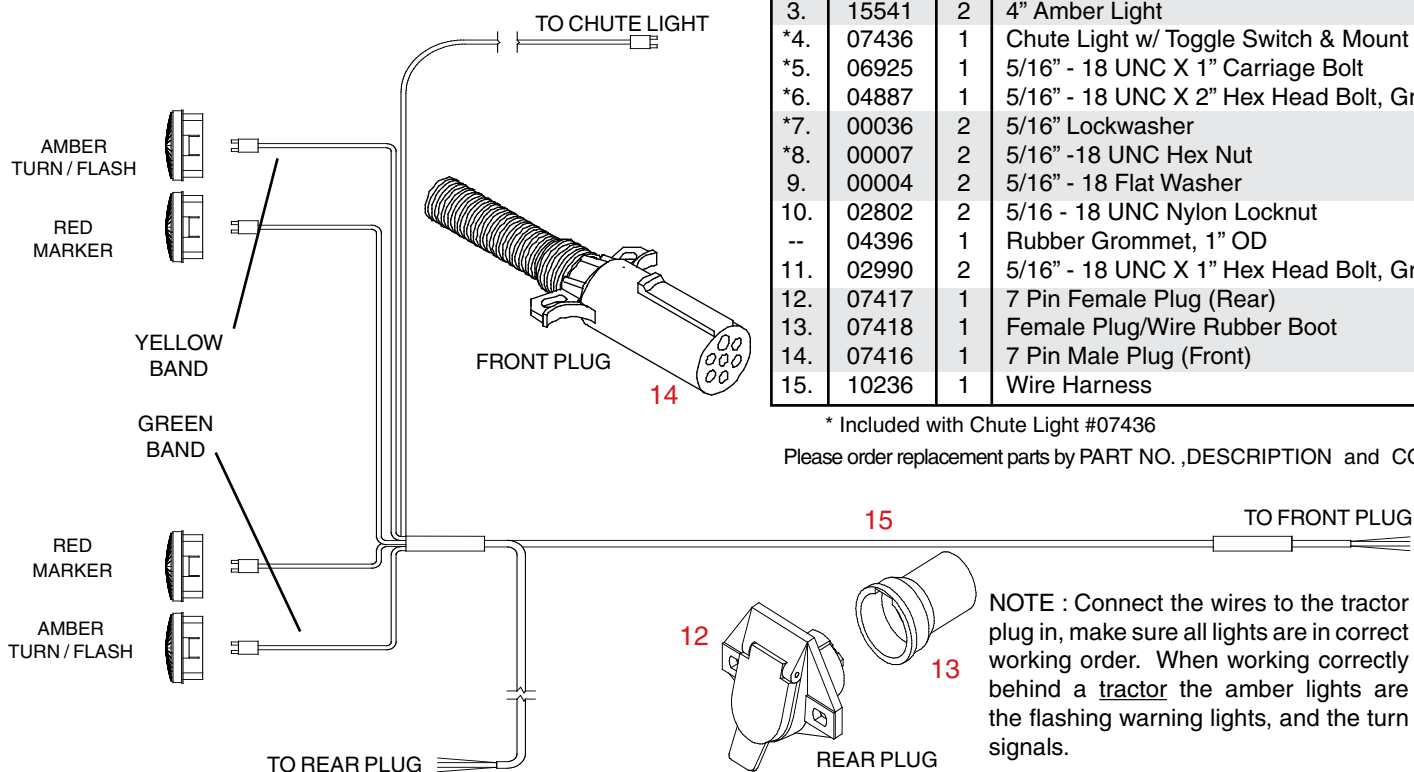
1. Begin by mounting the Chute Light (#4) to the Door Frame on the wagon using a 5/16" x 1" Carriage Bolt (#5), 5/16" Flat washer (#8), and 5/16" Nylon Insert Locknut (#10).
2. Insert a Light Mounting Grommet (#1) into each mounting hole. Press Red Lights (#2) and Amber Lights (#3) until they are securely mounted in the grommets.
3. Run the Wiring Harness (#15) on the right side of the gravity box, inside the upper angle support. Proceed wiring the lights as shown in the drawing and the wiring schematic. (Front of wagon has a 1" O.D. hole which the wiring harness passes through. The 1" Rubber Grommet must be used in this hole to protect the wires.)

LIGHT KIT PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	05447	4	Light Mounting Grommet
2.	15540	2	4" Red Light
3.	15541	2	4" Amber Light
*4.	07436	1	Chute Light w/ Toggle Switch & Mount
*5.	06925	1	5/16" - 18 UNC X 1" Carriage Bolt
*6.	04887	1	5/16" - 18 UNC X 2" Hex Head Bolt, Gr.5
*7.	00036	2	5/16" Lockwasher
*8.	00007	2	5/16" - 18 UNC Hex Nut
9.	00004	2	5/16" - 18 Flat Washer
10.	02802	2	5/16 - 18 UNC Nylon Locknut
--	04396	1	Rubber Grommet, 1" OD
11.	02990	2	5/16" - 18 UNC X 1" Hex Head Bolt, Gr.5
12.	07417	1	7 Pin Female Plug (Rear)
13.	07418	1	Female Plug/Wire Rubber Boot
14.	07416	1	7 Pin Male Plug (Front)
15.	10236	1	Wire Harness

* Included with Chute Light #07436

Please order replacement parts by PART NO., DESCRIPTION and COLOR.





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