



OPERATOR'S MANUAL

HS415
RUNNING GEAR

Part #HS101732

Rev. #00

HSMFG0324

Starting Ser. #421SG15001

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WARRANTY

H&S Manufacturing Co., Inc. Warranty

H&S Manufacturing Co., Inc. ("H&S") warrants this product to be free from defect in material and workmanship. Except as noted below, this warranty term is twelve (12) months on parts and labor, and twenty-four (24) months on parts only from the date of delivery of the product to the original purchaser by an authorized H&S dealer. Under this warranty, H&S will repair or replace, at its option, any covered part which is found to be defective in material or workmanship during the applicable warranty term. In no case will the covered repair cost of a part or parts exceed the replacement cost of that part. In no case, unless pre-authorized by H&S, will a component be replaced versus repaired unless the cost of labor and parts exceeds 75% of the cost of a new component. Warranty repairs must be performed by H&S or a dealer authorized by H&S to sell and/or service the product involved, and will use only new or remanufactured parts or components furnished by H&S. Any warranty repairs needing to be performed by a third party must be pre-authorized by H&S. Standard freight costs will be covered by H&S for any part used to make a warrantable repair, any form of express freight will not be covered unless pre-authorized by H&S. This warranty includes approved parts and labor to repair the product but does not include, and the purchaser is responsible for, any service call and/or transportation of the product to and from the dealer's place of business, for any costs related to travel, for any premium charged for overtime labor requested by the purchaser, and for any service work not directly related to any defect covered under this warranty. This warranty includes only those components of the product manufactured by H&S. Warranty for any component not manufactured by H&S including, but not limited to, engines, batteries, tires, rims, hydraulic motors, pumps, etc. are covered by the warranty, if any, provided separately by their respective manufacturers. H&S reserves the right to request the return of any failed component.

This warranty in all its parts is extended solely to the original purchaser of the product, is terminated upon any subsequent transfer or sale from or by the original purchaser, and extends no third party benefits or rights whatsoever.

The warranty term for any product used in any for hire, rental fleet or rental application, is limited to six (6) months from the date of delivery of the product to the original purchaser by an authorized H&S dealer.

This warranty does not include: (1) Any product that has been altered or modified in ways not approved by H&S; (2) Depreciation or damage caused by normal wear, use for which the product was not designed, misuse, improper or insufficient maintenance, improper operation, accident or failure to follow the product Operator's Manual recommendations and product decal recommendations; (3) Normal maintenance parts and service; (4) Repairs made with parts other than those available from H&S or performed by anyone other than H&S or a dealer authorized by H&S to sell and/or service the product involved.

To secure warranty service the purchaser must report the product defect to a dealer authorized by H&S to sell and/or service the product involved within the applicable warranty term together with evidence of the warranty start date and make the product available to that dealer within a reasonable period of time.

For these warranty terms to be in effect the selling authorized H&S dealer and/or the customer must submit the warranty registration to H&S.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. H&S and the companies affiliated with it make no warranties, representations, or promises, express or implied, as to the performance or freedom from defect of its products other than those set forth above and NO IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS OR FITNESS FOR A PARTICULAR PURPOSE IS MADE. IN NO EVENT WILL THE DEALER, H&S OR ANY COMPANY AFFILIATED WITH H&S BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. The ONLY REMEDY the purchaser has in connection with the breach of performance of any warranty on H&S products are those set forth above.

The selling dealer has no authority to make any representation or promise on behalf of H&S, or to modify the terms or limitations of this warranty in any way.

WARRANTY

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THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. H&S and the companies affiliated with it make no warranties, representations, or promises, express or implied, as to the performance or freedom from defect of its products other than those set forth above and NO IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS OR FITNESS FOR A PARTICULAR PURPOSE IS MADE. IN NO EVENT WILL THE DEALER, H&S OR ANY COMPANY AFFILIATED WITH H&S BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. The ONLY REMEDY the purchaser has in connection with the breach of performance of any warranty on H&S products are those set forth above.

The selling dealer has no authority to make any representation or promise on behalf of H&S, or to modify the terms or limitations of this warranty in any way.

12/21/22

MANUFACTURER'S STATEMENT

Your New H&S Product has been manufactured of the finest quality materials and components. The performance you get from your machine is largely dependent upon how well you read and understand this manual and apply this knowledge. There is a right and a wrong way to do everything. Please do not assume that you know how to operate and maintain your Machine before reading this manual carefully. Keep this manual available for ready reference.

H&S reserves the right to make changes or add improvements to its products at any time without incurring any obligation to make such changes to products previously manufactured. Specifications, statements and descriptions of Products contained in this publication are subject to change without prior notification.

WARRANTY REGISTRATION

- Date of Purchase: _____
- Purchaser Name: _____
- Street Address: _____
- City: _____
- State: _____ Zip: _____
- Phone Number: _____
- E-mail Address: _____
- Product: _____
- Model Number: _____
- Serial Number: _____
- You have received the Operator's Manual for this product. Yes _____ No _____
- Interested in receiving the H&S E-mail Newsletter? Yes _____ No _____

-
- Dealer Name: _____
 - Street Address: _____
 - City: _____
 - State: _____ Zip: _____
 - Signature: _____

- All fields must be filled out to ensure prompt notification of product and/or warranty updates.

Please mail the completed WARRANTY REGISTRATION FORM to:
H&S Manufacturing Co., Inc.
2608 S. Hume Ave.
Marshfield, WI 54449

(Remove Copy At Perforation)

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DEALER PRE-DELIVERY CHECKLIST

AFTER COMPLETION, DEALER SHOULD REMOVE AND RETAIN FOR RECORDS

After the Running Gear has been completely set up, check to be certain it is in correct operating order before delivering to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily.

- Running Gear was not damaged in shipment. Check for dents and loose or missing parts. Report damage immediately to H&S Manufacturing Co., Inc.
- Running Gear has been correctly assembled according to instructions in this manual.
- All bolts and fasteners and lug nuts are tight.
- All grease fittings have been lubricated. See Lubrication Chapter of this manual for details.
- Decals are in place and legible.
- Tires are equally inflated to the proper pressure.

Model Number _____

Serial Number _____

Dealer's Name _____

Inspection Date _____

Signature of Pre-Delivery Inspector _____

(Remove Dealer File Copy At Perforation)

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DEALER DELIVERY CHECKLIST

AFTER COMPLETION, DEALER SHOULD REMOVE AND RETAIN FOR RECORDS

This checklist that follows is an important reminder of valuable information that should be passed on to the customer at the time this Running Gear is delivered.

Check off each item as you explain it to the customer.

This delivery checklist, when properly filled out and signed, assures the customer that the pre-delivery service was satisfactorily performed.

- Explain to the customer that the pre-delivery inspection was made.
- Explain to the customer all the safety precautions they must exercise when operating this unit.
- Explain recommended loads for different types of materials.
- Explain to customer that regular lubrication is required for proper operation and long life of machine.
- Show customer the lubrication section of Owner's Manual.
- Give the customer Owner's Manual and make sure they read and understand all operating and service instructions.
- Have customer sign a completed "Warranty Registration" and mail it promptly.

Date Delivered _____

Dealer's Name _____

By _____

Signature of Original Buyer _____

Note: Warranty is not valid until warranty card is completed and returned to H&S Mfg. Co., Inc.

SAFETY INFORMATION



**BE
ALERT!** **YOUR SAFETY
IS INVOLVED.**

THIS SYMBOL IS USED THROUGHOUT THIS BOOK WHENEVER YOUR PERSONAL SAFETY IS INVOLVED. TAKE TIME TO BE CAREFUL. REMEMBER: THE CAREFUL OPERATOR IS THE BEST OPERATOR. MOST ACCIDENTS ARE CAUSED BY HUMAN ERROR. CERTAIN PRECAUTIONS MUST BE OBSERVED TO PREVENT THE POSSIBILITY OF INJURY OR DAMAGE.

H&S MANUFACTURING CO., INC.

SAFETY INFORMATION

Keep signs in good condition. Immediately replace any missing or damaged signs.

RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury. Follow recommended precautions and safe operating practices.



UNDERSTAND SIGNAL WORDS

A single word - DANGER, WARNING, or CAUTION - is used with the safety alert symbol. DANGER identifies the most serious hazards.

Safety signs with signal word DANGER or WARNING are typically near specific hazards.

General precautions are listed on CAUTION safety signs.



FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and all safety signs on your machine. Follow all recommended precautions and safe operating procedures.

OBSERVE MAXIMUM TRANSPORT SPEED

The maximum transport speed for this implement is 32 km/h (20 mph).

Some tractors are capable of operating at speeds that exceed the maximum transport speed of this implement. Regardless of the maximum speed capability of the tractor being used to tow this implement, do not exceed the implement's maximum transport speed.

Exceeding the implement's maximum transport speed can result in:

- * Loss of control of the tractor/implement combination
- * Reduced or no ability to stop during braking
- * Implement tire failure
- * Damage to the implement structure or its components

Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines.

Do not attempt transport if the fully loaded implement weighs more than 1.5 times the weight of the tractor.



SAFETY INFORMATION

FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and all safety signs on the machine. Follow recommended safety precautions and safety operating practices.

Keep safety signs in good condition. Replace missing or damaged safety signs.

RUN-AWAY / BREAK AWAY

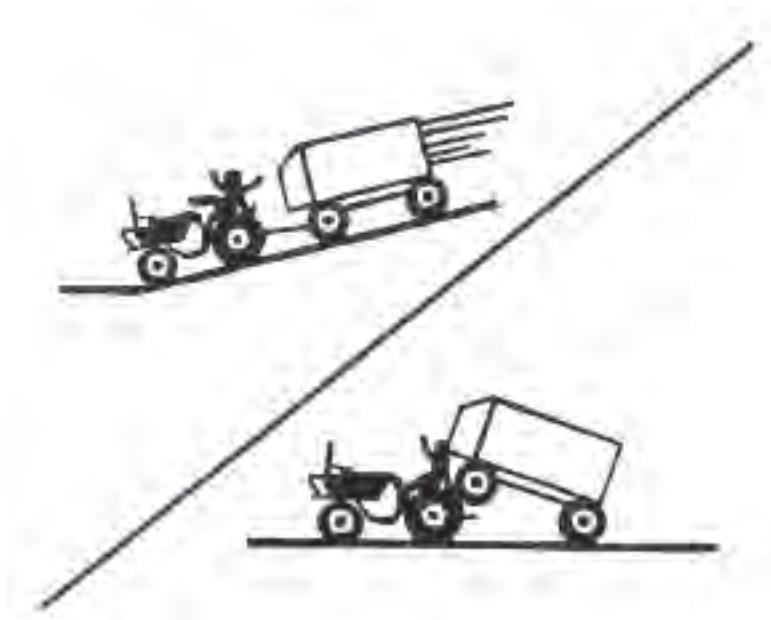


Shift to lower gear before going down steep grades.

Keep towing vehicle in gear at all times.

Never exceed safe travel speed.

Always use safety pin with locking device and safety chain when attaching towing vehicle.



LOAD WAGON SAFELY



WARNING: Help prevent Running Gear and tractor rollover due to uneven load distribution. Distribute load evenly between front and rear, and side to side. Distribute load evenly. Poor distribution can cause improper trailing of Running Gear.

SAFETY INFORMATION

MOUNT ATTACHMENTS SAFELY



CAUTION: When mounting equipment to the Running Gear, refer to the manufacturer's mounting recommendations for that particular equipment.



WARNING: Help prevent serious injury or death resulting from tractor or Running Gear rollover. Travel uphill or downhill when working on inclines or slopes, avoid traveling across the grade.



BE AWARE OF LOW TIRES

Be aware of load height and height of electrical wires in the area.



MAINTAIN SAFE CLEARANCE FROM ELECTRIC POWER LINES AND AVOID CONTACT WITH ANY ELECTRICALLY CHARGED CONDUCTOR.

CONTACT WITH ELECTRIC POWER SOURCES CAN RESULT IN ELECTRICAL SHOCK OR ELECTROCUTION.

FAILURE TO HEED THIS WARNING MAY RESULT IN SERIOUS INJURY OR DEATH.

SAFETY INFORMATION

TRACTOR:

This operator's manual uses the term "Tractor" when identifying the power or the towing source.



TO PREVENT SERIOUS INJURY OR DEATH

BEFORE YOU ATTEMPT TO OPERATE THIS EQUIPMENT, READ AND STUDY THE FOLLOWING INFORMATION. IN ADDITION, MAKE SURE THAT EVERY INDIVIDUAL WHO OPERATES OR WORKS WITH THIS EQUIPMENT, WHETHER FAMILY MEMBER OR EMPLOYEE, IS FAMILIAR WITH THESE SAFETY PRECAUTIONS.

Stop the tractor engine, remove ignition key, and allow all mechanisms to stop before cleaning, working, or adjusting on machine.

DO NOT ALLOW PERSONNEL OTHER THAN THE QUALIFIED OPERATOR NEAR THE MACHINE.

DO NOT allow riders on machine at any time.

ALWAYS use a safety pin with locking device.

DO NOT step up on machine at any time.

NEVER exceed safe travel speed.

DO NOT allow minors to operate or be near the machine.

STAY CLEAR of hydraulic lines, they may be under extreme pressure or heat.

Loose or floppy clothing should not be worn by the operator.

H&S always takes the operator and his safety into consideration and guards exposed moving parts for his protection. However, some areas cannot be guarded or shielded in order to assure proper operation. In addition, the operators manual and decals on the machine itself warn you of further danger and should be read and observed closely.

Study The Above Safety Rules

ATTENTION - BE ALERT - YOUR SAFETY IS INVOLVED

CAP SCREW TORQUE VALUES

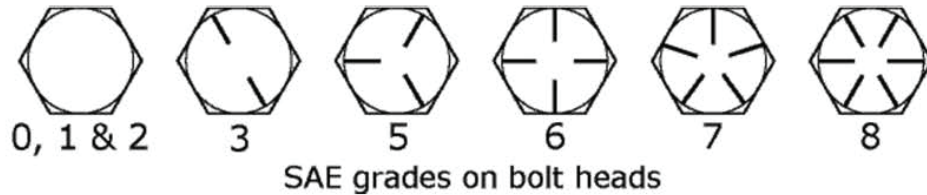
The specifications below are the torque values for fasteners as it adheres to the SAE torque value standards. All fasteners should be torqued to the proper values found in the figures below unless otherwise specified by the engineering drawing.

Lubed torque would be any fastener that has grease, liquid Loctite, oil, etc. on the threads.

Dry torque would be any fastener which has threads that are clean and dry and do not have any liquid Loctite or grease on them.

Hex Head Fasteners

The figure shown below shows how to determine what grade a fastener is.



SUGGESTED ASSEMBLY TORQUE VALUES							WORKING TORQUE			
Diam & Thrds Per Inch	SAE GRADE 2 -6"		SAE GRADE 5		SAE GRADE 8		18-8 SS	316 SS	BRASS	SILICON BRONZE
	Dry FT. LB.	LUB FT. LB.	Dry FT. LB.	LUB FT. LB.	Dry FT.LB.	LUB FT. LB.	IN LBS	IN LBS	IN LBS	IN LBS
1/4-20	5.5	4.2	8	6.3	12	9	75.2	78.8	61.5	68.6
1/4-28	6.3	4.7	10	7.2	14	10	94.0	99.0	77.0	87.0
5/16-18	11	8	17	13	24	18	132	138	107	123
5/16-24	12	9	19	14	27	20	142	147	116	131
3/8-16	20	15	30	23	45	35	236	247	192	219
3/8-24	23	17	35	25	50	35	259	271	212	240
7/16-14	32	24	50	35	70	50	376	393	317	349
7/16-20	36	27	55	40	80	60	400	418	327	371
1/2-13	50	35	75	55	110	80	517	542	422	480
1/2-20	55	40	85	65	120	90	541	565	443	502
9/16-12	70	55	110	80	150	110	682	713	558	632
9/16-18	80	60	120	90	170	130	752	787	615	697
5/8-11	100	75	150	110	210	160	1110	1160	907	1030
5/8-18	110	85	170	130	240	180	1244	1301	1016	1154
3/4-10	175	130	260	200	380	280	1530	1582	1249	1416
3/4-16	200	140	300	220	420	310	1490	1558	1220	1382
7/8-9	170	125	430	320	600	450	2328	2430	1905	2140
7/8-14	180	140	470	350	670	500	2318	2420	1895	2130
1-8	250	190	640	480	910	680	3440	3595	2815	3185
1-14	280	210	720	540	1020	760	3110	3250	2545	2885

SET-UP & ASSEMBLY

Note: Determine right and left side of the Running Gear by viewing it from the rear. If instructions or parts lists call for hardened bolts, refer to Cap Screw Torque Values page to identify.

1. Check the Running Gear for proper assembly and adjustment.
2. Make sure that all bolts are tightened.
3. Lubricate the Running Gear completely. (See Lubrication Chapter in this manual).
4. Check the tires for proper air pressure. Refer to the manufacturers recommended PSI rating.
5. Check wheel bolts upon delivery, and periodically thereafter. Follow the recommended torque chart below for your model of Running Gear.

WHEEL BOLTS

Tighten wheel bolts to specifications below and again after the Running Gear has been in use for a short period of time. **Check periodically thereafter.**

MODEL

HS415

TORQUE

85-100 ft. lbs

SET-UP & ASSEMBLY

TIRE INFLATION

Inflate tires to manufacture's recommended pressure, making sure all tires have equal pressure. Inadequate or unequal tire pressure can cause improper trailing and premature tire failure.

Tire Sizes & Capacities Chart

Size	Capacity @ 30 MPH	PSI
9.5L x 15 – 8 Ply	2470#	44

TRANSPORTING

TOWING

ALWAYS USE A SAFETY PIN WITH A LOCKING DEVICE.

Follow state and local regulations when towing farm equipment on public highways. Never tow the chassis on a public highway at a speed greater than 20 mph (32 kph).

SAFETY CHAIN

To prevent break-away, always use a safety chain when attaching to the towing vehicle. The safety chain shall have a minimum tensile strength equal to, or greater than the ultimate gross weight of the towed machine. It must be replaced if one or more links are broken, stretched or otherwise damaged.

OPERATION

GENERAL INFORMATION

After receiving your Running Gear, check the entire unit carefully before first operation. Tighten bolts that might have come loose. Lubricate as explained in the Lubrication Chapter in this manual.

WHEEL BOLTS

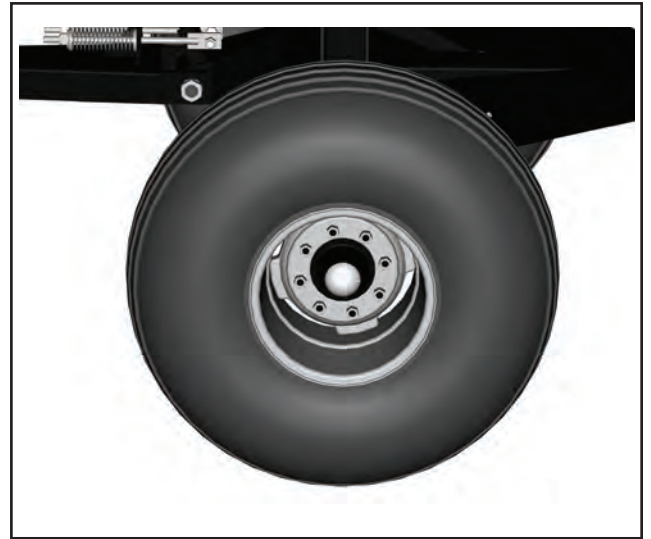
Torque the wheel bolts to specifications below. After the Running Gear has been in use for a short period of time, re-torque again. **Check periodically thereafter.**

MODEL

HS415

TORQUE

85-100 ft. lbs



TIRE PRESSURE

Maintain manufacture's recommended pressure, making sure all tires have equal pressure. Inadequate or unequal tire pressure can cause improper trailing and premature tire failure. Refer to the Tire Sizes & Capacities Chart for correct pressure ratings.

ADJUSTMENTS

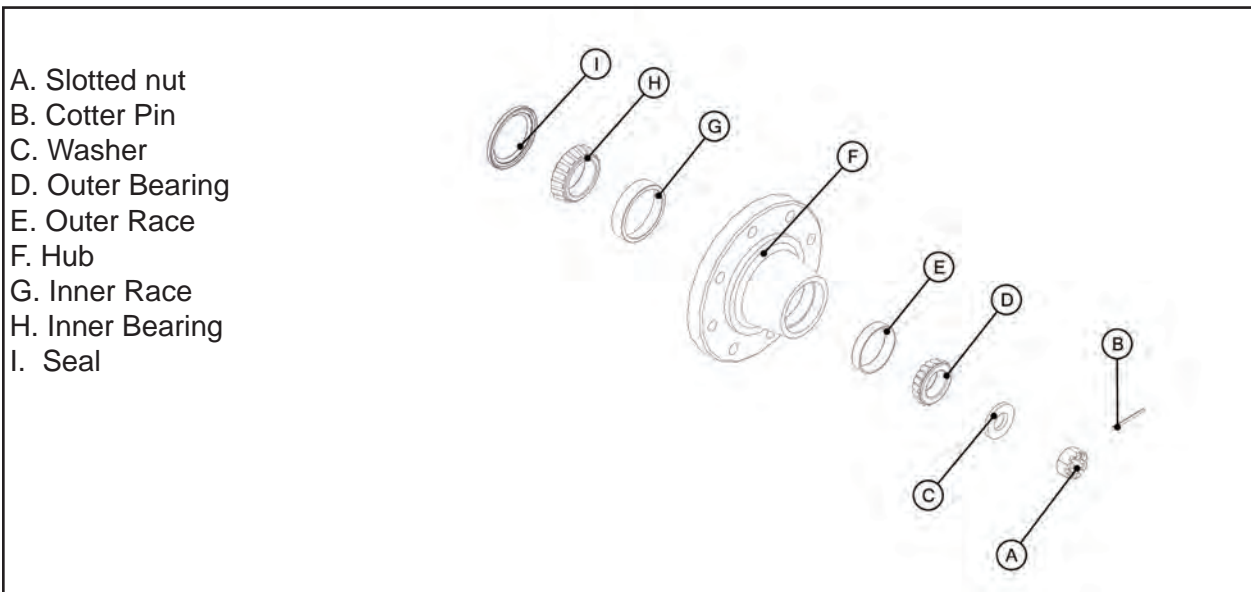
WHEEL BEARINGS

IF WHEEL BEARINGS BECOME LOOSE, ADJUST THEM IMMEDIATELY.

1. Block wheels to prevent rolling, jack up chassis until wheels turn freely.
2. Remove hub cap.
3. Remove cotter pin (B) from adjusting nut and spindle.
4. Tighten hub nut (A) until there is a slight drag on hub when wheel is turning.
5. Check cotter pin hole location on spindle, back nut off one notch on nut, re-insert cotter pin.
6. Replace hub cap, and lower to the ground.

CLEAN AND RE-PACK WHEEL BEARINGS

Annually disassemble and clean parts in a solvent. Pack bearings (D & H) with a high grade grease. Reassemble, and tighten hub nut (A) until there is a slight drag on hub when wheel is turning. Check cotter pin hole location on spindle, back nut off one notch on nut, re-insert cotter pin.



TELEPOLE SPRING ASSIST

The spring assist is designed to aid the operator in attaching the Running Gear to the tow vehicle. Overtightening the spring assist can increase the possibility of the hitch latch becoming unlatched. It can also cause wear on the drawbar, hitch pin, and the running gear hitch plates. Overtightening also increases the possibility of dislodging the safety pin, causing Running Gear breakaway, and leading to possible injury or death.

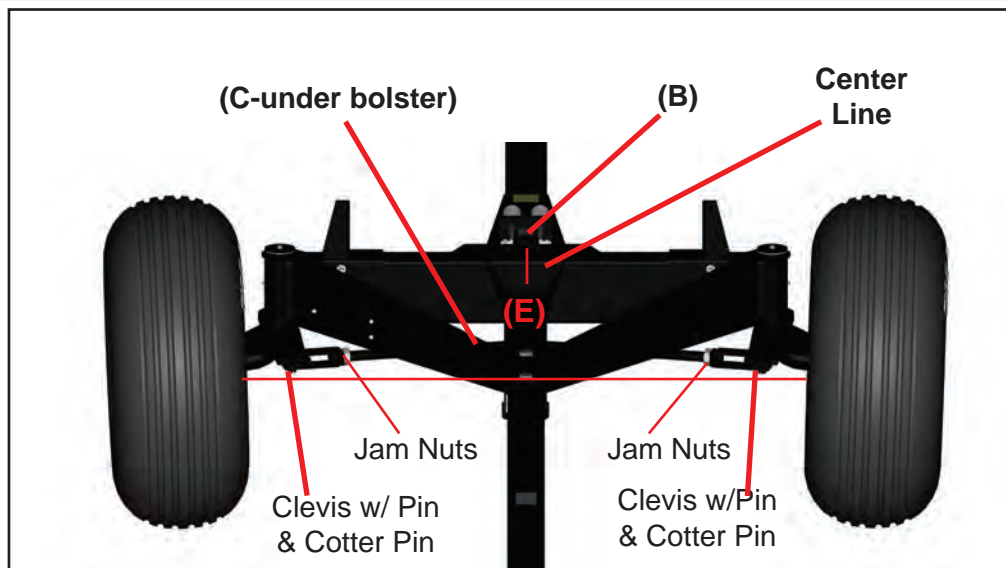
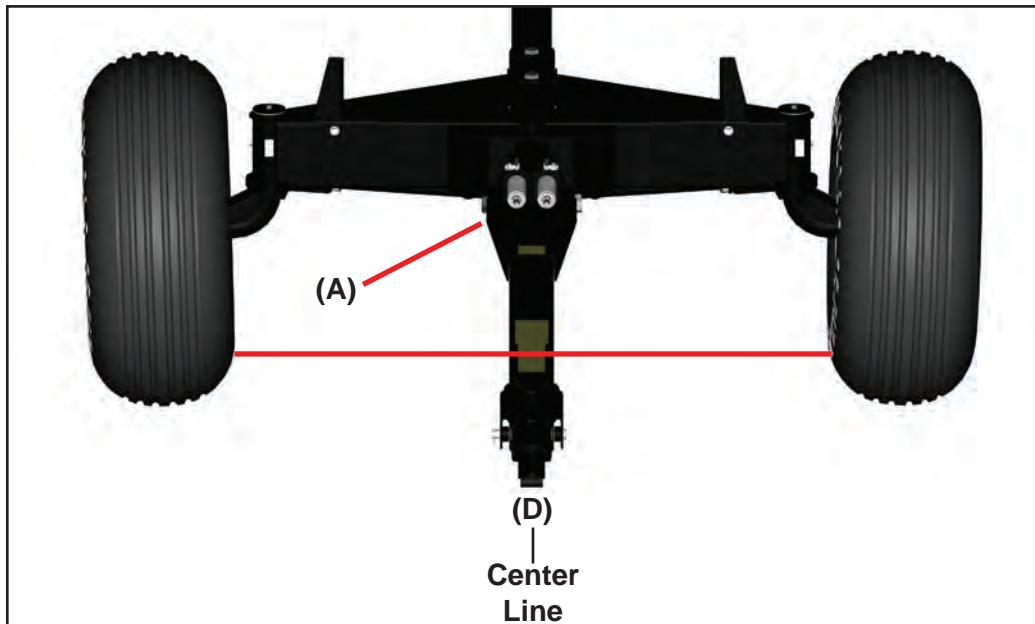


ADJUSTMENTS

WHEEL TOE-IN

Front wheel toe-in has been preset at the factory. If adjustments become necessary, use the following procedure:

1. Place the hitch pole in the exact forward position.
2. Check the tightness of the pole pin (A), steering pin (B), and center tie rod bolt (C). Retighten them if necessary.
3. Measure the dimension between the bead on the rims at point (D-front) and (E-rear).
4. The dimension of the front measurement should be 1/4" to 3/8" less than the rear.
5. If adjustment is necessary, loosen the jam nuts on the tie rod.
6. Remove the cotter pin and pin from the clevis at each end of the tie rod.
7. Mark a center line on the wagon. Measure the dimension from the front of the rim (D) to the center line. Adjust the clevis so the front dimension to the center line is 1/8" to 3/16" LESS than the one-half dimension of the rear dimension (E) to the center line, making sure that each side is an equal measurement.
8. Replace the pin and cotter pin through the clevis and steering arm of spindle.
9. Securely tighten jam nuts.



SERVICE

Follow the Service Chart below to achieve the best performance from your Running Gear.

FREQUENTLY:

- * Check wheel bearings, making sure of proper adjustment.
- * Check lug nuts. Be sure all are tightened to specifications prior to operation.
- * Check tire pressure. Make sure all tires are inflated equally to proper pressure.
- * Lubricate all points identified in this manual.

SEASONALLY:

- * Check all tires for wear.
- * Check all pivot points and bushings for wear.

ANNUALLY:

- * Remove and repack wheel bearings - Refer to the **Wheel Bearing Chapter** of this manual for the process.

DECAL LOCATION

Your H&S Running Gear was manufactured with operator safety in mind. Located on the Running Gear are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all the decals on your chassis.



DO NOT REMOVE ANY TO THESE DECALS. IF DECALS ARE LOST, DAMAGED, OR IF RUNNING GEAR IS REPAINTED, REPLACE DECALS. REMEMBER: DECALS ARE FOR YOUR PROTECTION AND SAFETY.

<u>Part #</u>	<u>Qty</u>	<u>Description</u>
1495A	1	Run-Away/Break-Away Hazard
1495C	1	Crushing Hazard
1495D	1	Adjust Spring Tension on Pole
91604	1	To Prevent Serious Injury
32312	1	Reach Decal
093020	5	Decal, Grease Zerk
DCSERIAL	1	Decal, Serial Number
84045	1	Decal, Since 1967
54033	1	Decal, Orgin USA
311	1	Decal, Patent Numbers
84044	1	Decal, FEMA
8699	1	Decal, 415/417 Running Gear Front
8698	1	Decal, 415 Running Gear Back

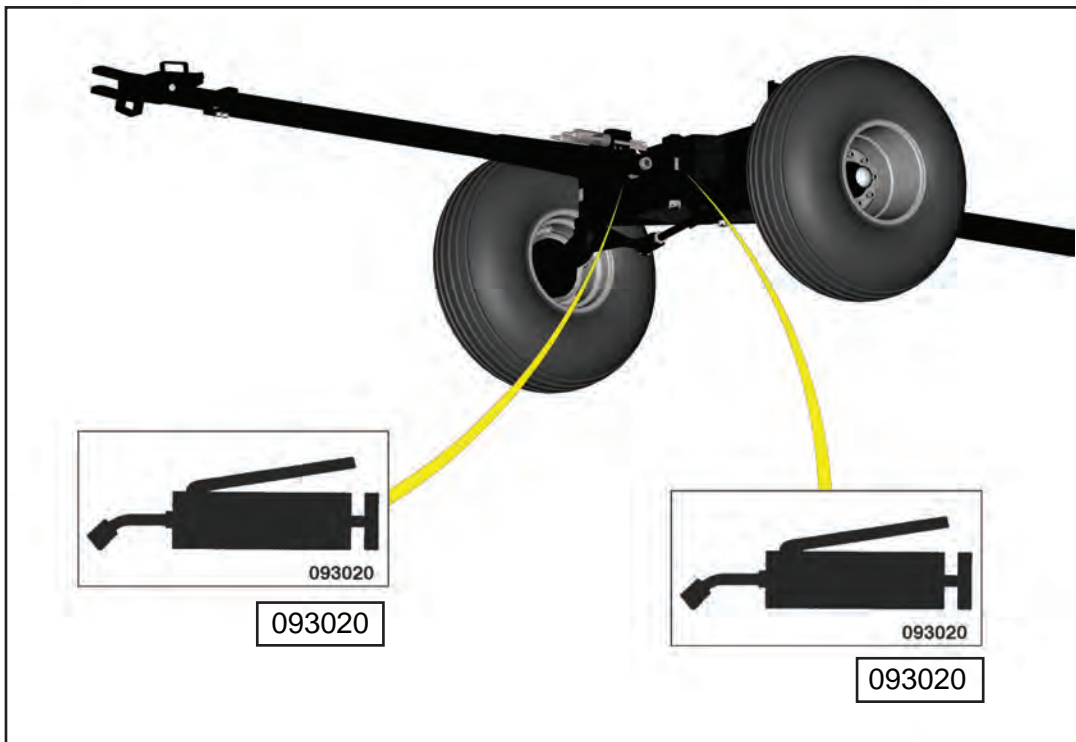
LUBRICATION

Become familiar with all lubrication points and establish a routine to ensure complete lubrication of the Running Gear.

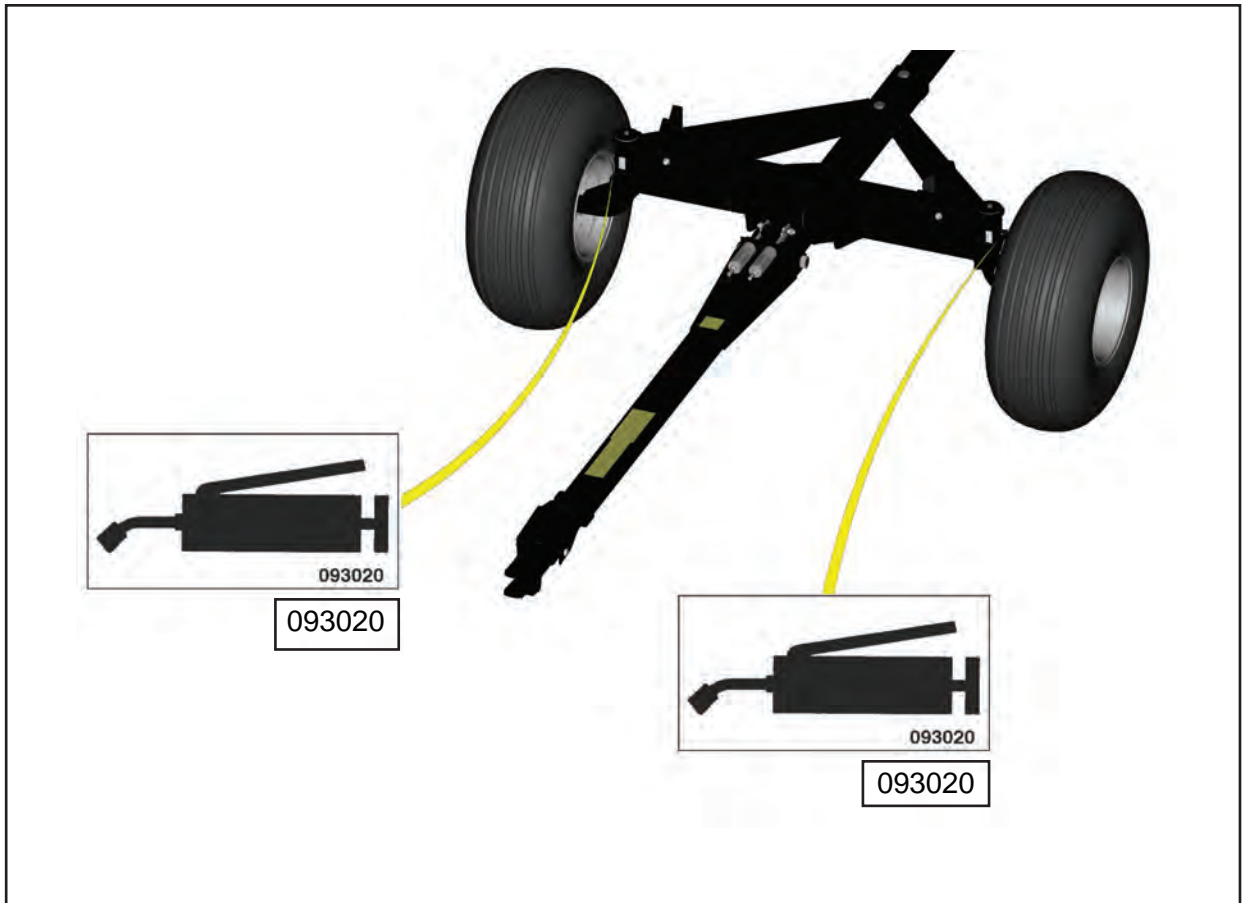
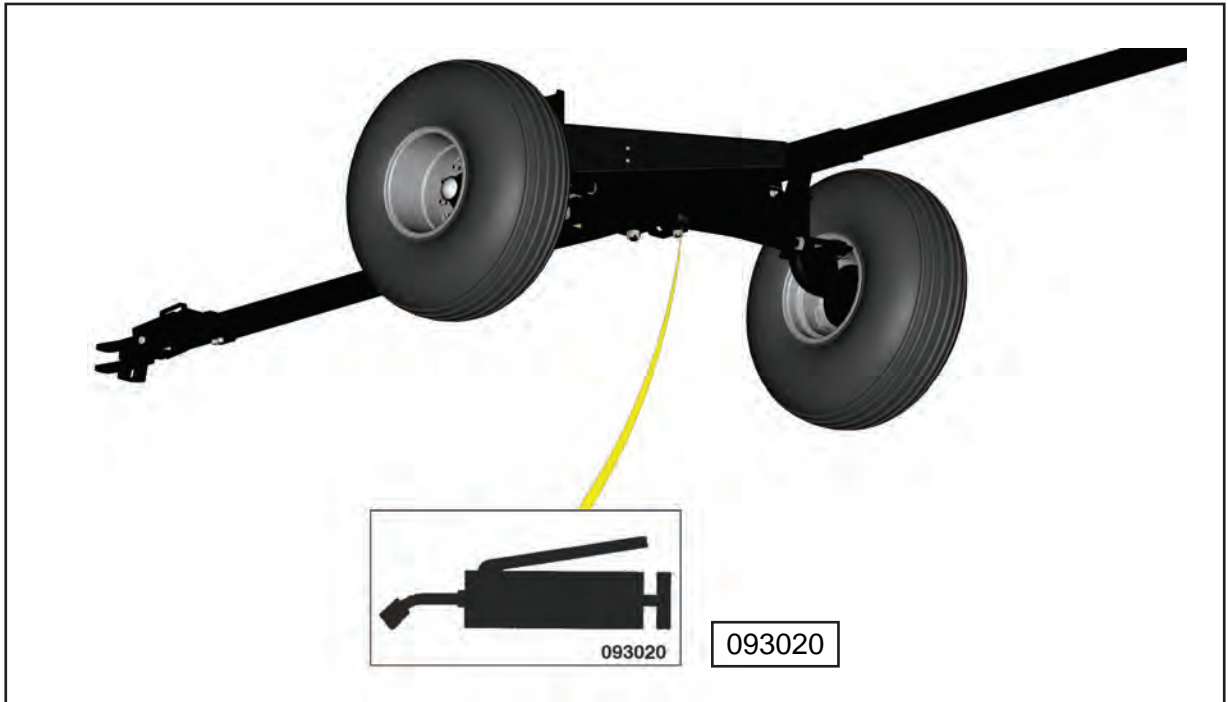
GENERAL INFORMATION

Lubricating properly and often enough will prolong the life of your Industrial Running Gear. Grease daily during normal use and **before and after storage and after power washing**. Use a good grade of Lithium-base grease. Make sure that grease comes out around the shaft on sleeve type bearings. Wipe off excessive grease to prevent accumulation of chaff or grit around bearing.

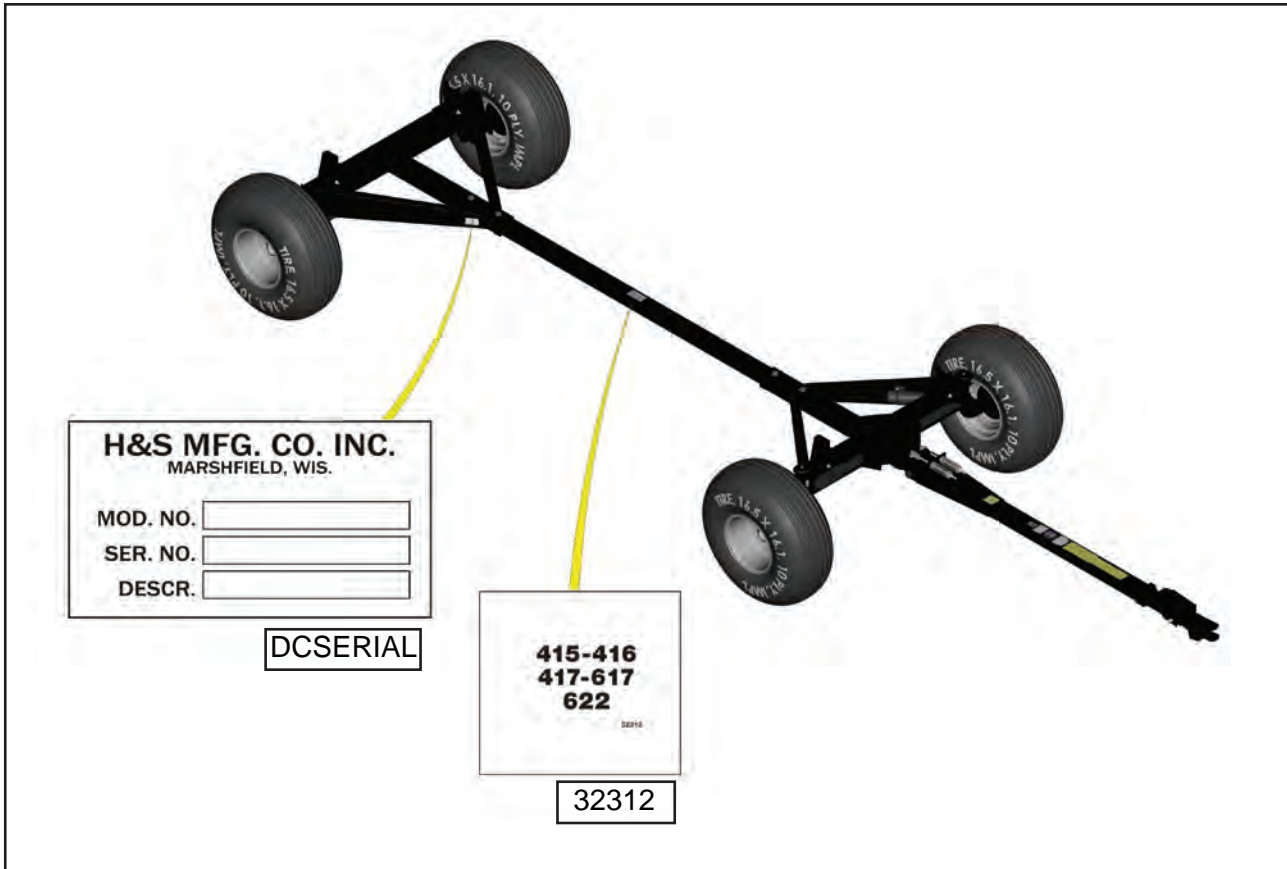
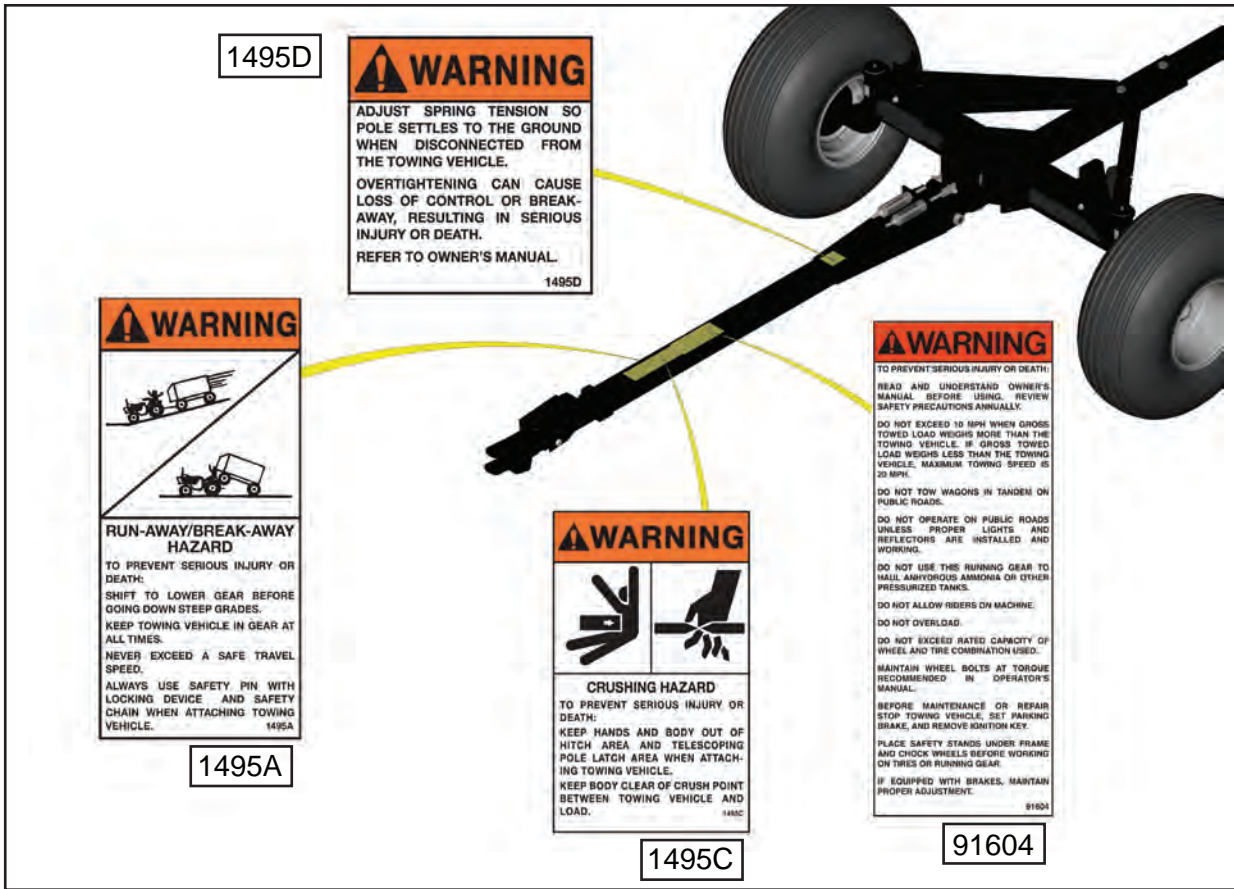
IMPORTANT: *Catch and dispose of fluid per local waste disposal regulations whenever service is performed on hydraulic components, valves, cylinders, hoses, etc.*



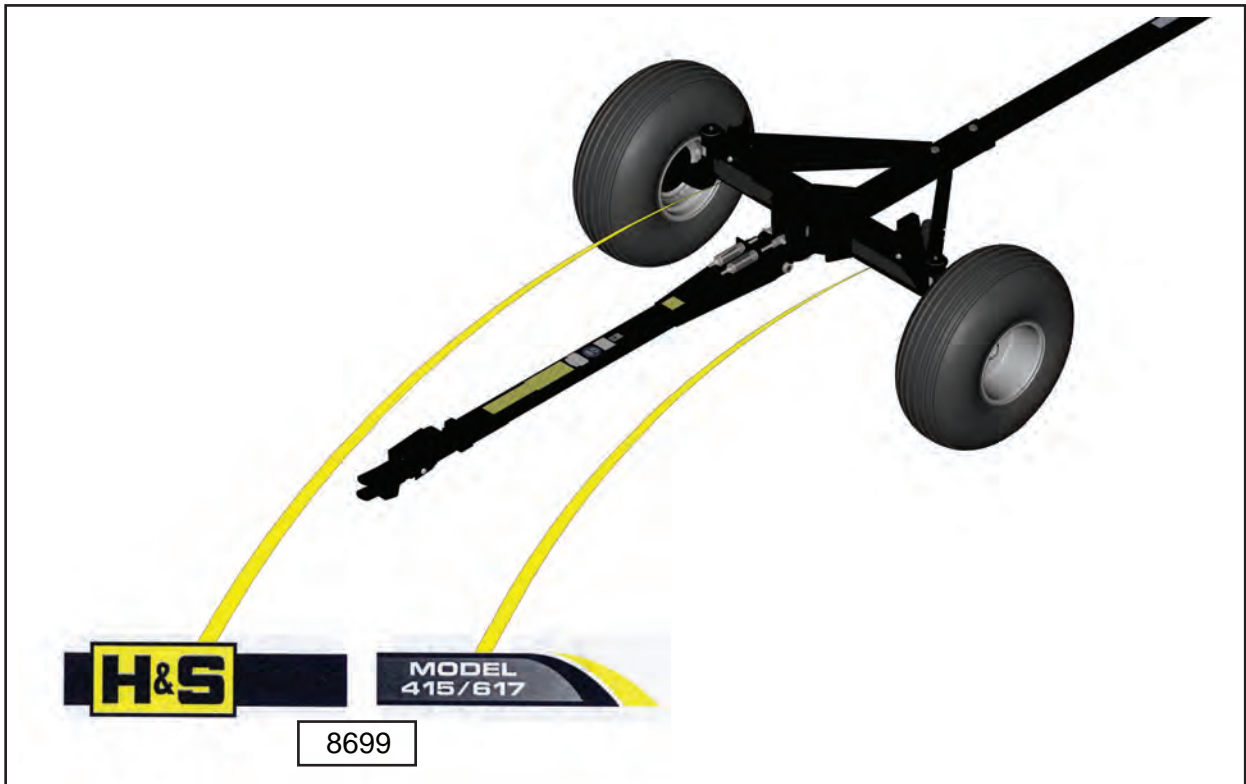
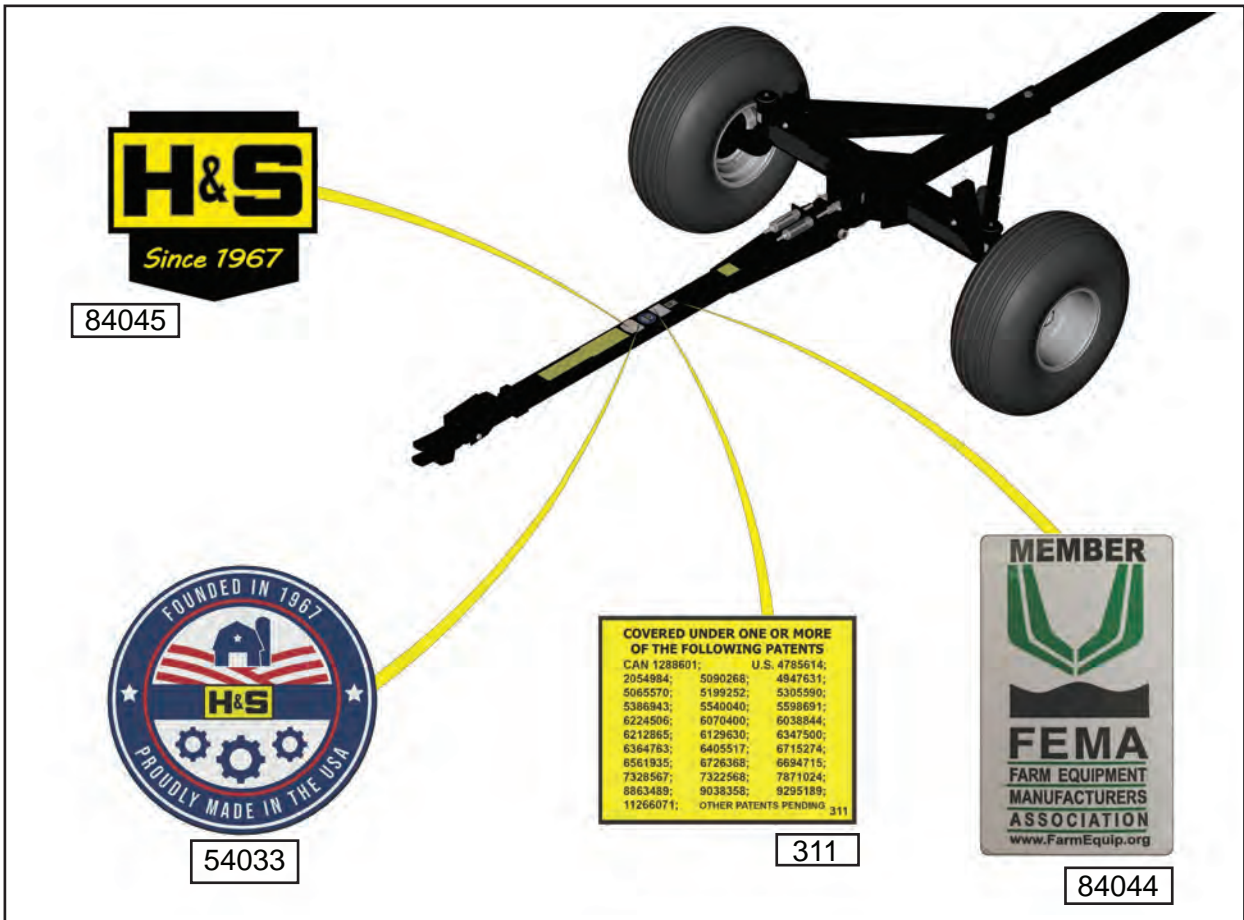
LUBRICATION



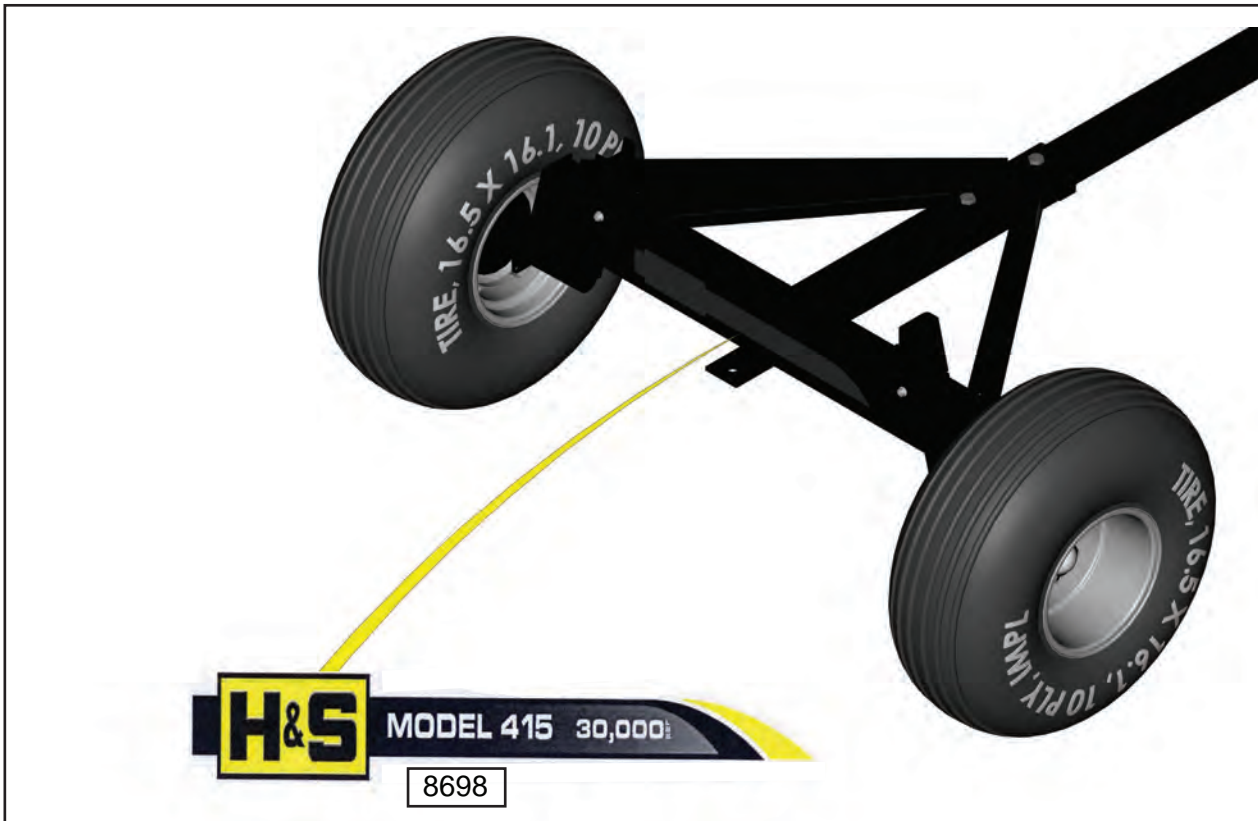
DECAL LOCATION



DECAL LOCATION



DECAL LOCATION



H&S MFG. CO.

products approved

for the

FEMA

SEAL OF QUALITY

