OWNER'S MANUAL

Steerable Auxiliary Axle Systems

SUBJECT: Operation and Preventive Maintenance Procedures
LIT NO: OM-H754
DATE: April 2015 **REVISION:** B

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HENDRICKSON
The World Rides On Us®

SECTION 1
Introduction

This publication is intended to acquaint and assist maintenance personnel in the identification, operation and preventive maintenance of Hendrickson Steerable Auxiliary Axle Suspension Systems. Refer to Hendrickson Publication No. H633 Steerable Installation Guide for installation and additional service, repair, and rebuild instructions for such products.

NOTE Use only Hendrickson Genuine parts for servicing this suspension system.

It is important to read and understand the entire Owner's Manual publication prior to performing any maintenance of the product. The information in this publication contains product images, safety information, product specifications, features, proper maintenance, and operating instructions of Hendrickson Auxiliary Axles.

Hendrickson reserves the right to make changes and improvements to its products and publications at any time. Contact Hendrickson Tech Services for information on the latest version of this manual at 1-800-660-2829 (toll-free U.S.), 1-800-668-5360 (toll-free Canada), or e-mail: liftaxle@hendrickson-intl.com.

The latest revision of this publication is also available online at www.hendrickson-intl.com.

RECORDING YOUR PART / SERIAL NUMBER(S)

Please utilize Table 1-1 to record the Serial Number(s) and Part Number(s) of your suspensions / axles for future reference to help identify the suspension when contacting Hendrickson Specialty Products – Auxiliary Axle Systems. This information is necessary for warranty and/or customer service needs. To locate the Part Number and Serial Number information refer Figure 2-1.

NOTE Refer to Warranty Procedure Guide, Hendrickson Publication No. H624 for information on Auxiliary Axle Suspension Systems warranty.

TABLE 1-1

	SERIAL NUMBER	PART NUMBER
1.		
2.		
3.		
4.		
5.		
6.		
NOTES		

SECTION 2
Product Description

IDENTIFYING YOUR LIFT AXLE SUSPENSION(S)

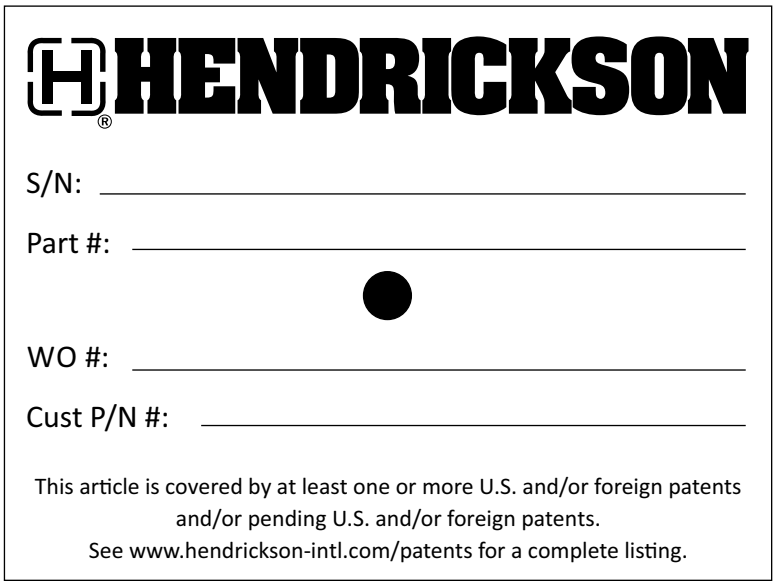
NOTE All Hendrickson Auxiliary Lift Axles are manufactured with a serial number plate to help in identification, see Figure 2-1.

When identifying your Hendrickson Auxiliary Lift Axle visually, see Figures 2-2 to 2-5 to compare with your suspension.

AXLE TAG IDENTIFICATION

The Serial Number Label shown in Figure 2-1, is stainless steel label and attached to the body of the suspension system. The label contains the serial number and the part number unique to that particular suspension system. These two numbers are important to use when contacting Hendrickson for customer service, replacement parts and warranty.

FIGURE 2-1 Serial Number Label



HENDRICKSON SERIAL-TAG CUBB #1001970 210322/1 8/8/12

STEERABLE MODELS

Hendrickson's COMPOSILITE SC family of lift axles for steerable truck and trailer applications delivers reliability, cost-effectiveness and innovation. The COMPOSILITE family offers a full range of capacities from 10,000 to 20,000 pounds, including axles for roll-off and twin steer applications. The COMPOSILITE SCT and COMPOSILITE SCO models come equipped with Hendrickson's patented Compliant Tie Rod (CTR) with PerfecTrak technology, the first compliant tie rod assembly and dampening system.

FIGURE 2-2

COMPOSILITE™ SCT | TRUCK

The COMPOSILITE SC family, for truck applications, provides capacity ratings of 8,000, 10,000, 13,500 and 20,000 pounds; the most popular being the SCT13, 13,500 pounds. The line boasts the first patented Compliant Tie Rod (CTR) with PerfecTrak technology, designed to help lower maintenance costs and increase uptime by providing a resilient, impact resistant tie rod assembly. The family also utilizes a fabricated two piece axle, designed to increase the strength and durability while providing significant weight reduction over the existing I-beam forged design.

Available in 8K, 10K, 13.5K and 20K pound capacities.

FIGURE 2-3

COMPOSILITE™ SCW(B) | TRAILER

The COMPOSILITE SC family, for trailer applications, provides capacity ratings of 8,000, 10,000, 13,500 and 20,000 pounds; available in weld-on or bolt on configurations. The trailer mount COMPOSILITE SC Series boasts a Heavy-duty (HD) Compliant Tie Rod (CTR) with a round tube tie rod and the dampening bushing ends of the popular CTR system. The family also utilizes a fabricated two piece axle, designed to increase the strength and durability while providing significant weight reduction over the existing I-beam forged design.

Available in 8K, 10K, 13.5K and 20K pound capacities.
Available in weld-on (SCW) or bolt-on (SCB).
(Pictured enhancements may differ from options received; please see Hendrickson Literature number TB-H755 for details on enhancements for received capacity).

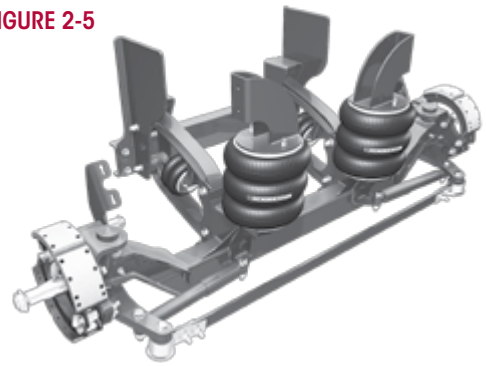
FIGURE 2-4

COMPOSILITE™ TVR | TWIN STEER TRUCK

The COMPOSILITE TVR twin steer design, with similar features to the COMPOSILITE SC family, includes a transverse V-Rod feature that provides an increased lateral load rating. The TVR includes an integrated steering arm as well as inboard rail mounted upper air spring plates and a standard tubular tie rod. It is offered in capacities up to 20,000 pounds and utilizes a fabricated two-piece axle engineered to optimize strength and durability.

Available in 20K pound capacity.

FIGURE 2-5



COMPOSILITE™ SCO | ROLL OFF TRUCK

The COMPOSILITE SCO, available in 13,500 and 20,000 capacities, mounts to the inside of the frame to help provide maximum clearance from cylinder beams, attachments and sliding components for roll-off applications. Its scalloped hangers, inbound positioned ride springs and parallelogram components aid in the clearance around roll-off cylinders.

Available in 13K and 20K pound capacities.

FIGURE 2-6

TOUGHLIFT™ LK | DUAL TIRE TRUCK

The TOUGHLIFT LK, the leading kingpin suspension and axle is designed around the proven HLM concept for rigorous environments and incorporates Hendrickson's popular QUIK-ALIGN® feature and TRI-FUNCTIONAL® Bushings. The fabricated knuckle design minimizes kingpin offset for a more efficient package while incorporating a fully integrated system designed by Hendrickson.

Available in 25K pound capacity.

HENDRICKSON STEERABLE AUXILIARY LIFT AXLES DATES OF ACTIVE PRODUCTION

MODEL	MODEL REPLACED BY	PART NUMBER PREFIX		AFTERMARKET		OEM / ON-LINE	
		TRUCK	TRAILER	BEGIN	END	BEGIN	END
TOUGHLIFT LK		LT25		2015	Present	–	–
COMPOSILITE TVR Twin Steer		TS		2013	Present	–	–
COMPOSILITE SCW (B)			SCB08, SCW08	2015	Present	–	–
			SCB10, SCW10	2015	Present	–	–
			SCB20, SCW20	2013	Present	2013	Present
			SCB13, SCW13	2010	Present	2010	Present
COMPOSILITE SCT		SCT08		2014	Present	–	–
		SCT10, SCT13, SCT20		2010	Present	2010	Present
COMPOSILITE SCO Roll Off - Truck		SCO		2010	Present	2010	Present
PARALIFT HLPS	COMPOSILITE SC 20K	PST20		2008	2010	2007	2014
COMPOSILITE ST	COMPOSILITE SC 13K	STT13	STW13, STB13	2007	2010	2007	2014
COMPOSILITE FBC	COMPOSILITE SC 10K	FBT10 / FBT08		2004	2006	2005	2014
HLUC3 / HLUC4	ST	UC3T13 / UC4T13	UCW3, UCW4, UCB3, UCB4	2005	2007	2004	2013
HLUC2	HLUC3 / HLUC4	UC2T13	UC2B13, UC2W13	2002	2005	2003	2013
HLUCL	HLUC2	UCLT13		2002	2002	2001	2002
PARAREV HLUR2		UR2T13		2000	Present	2001	2014
HLUR	HLUR2	URT13		1999	2000	1999	2001
PST13 Kit Version	*COMPOSILITE SC Kit Version	PST13		1999	2012	--	--
HLUS2	HLUCL	US2T13	US2B13, US2W13	1999	2005	1997	2013
HLUS	HLUS2	UST13	USB13, USW13	1997	1999	1997	2013
HLU	HLUS	UT13	UW13	1997	1997	--	--
PARALIFT HLP	PARALIFT HLPS	PT13, PT16, PT20	PB13, PW13, PB16, PW16, PB20, PW20	1996	2008	2007	2008

*Contact Hendrickson Auxiliary Lift Axle for COMPOSILITE SC kit replacement availability.

Important Safety Notice

Proper maintenance, service, and repair is important for the reliable operation of the suspension. The procedures recommended by Hendrickson and described in this technical publication are methods of performing such maintenance, service and repair.

All safety related information should be read carefully to help prevent personal injury and to assure that proper methods are used. Improper servicing may damage the vehicle, cause personal injury, render it unsafe in operation, or void manufacturer's warranty.

Failure to follow the safety precautions in this manual can result in personal injury and/or property damage. Carefully read and understand all safety related information within this publication, on all decals and in all such materials provided by the vehicle manufacturer before conducting any maintenance, service or repair.

EXPLANATION OF SIGNAL WORDS

Hazard "Signal Words" (Danger-Warning-Caution) appear in various locations throughout this publication. Information accented by one of these signal words must be observed to help minimize the risk of personal injury to service personnel, or possibility of improper service methods which may damage the vehicle or render it unsafe.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Additional Notes or Service Hints are utilized to emphasize areas of procedural importance and provide suggestions for ease of repair. The following definitions indicate the use of these signal words as they appear throughout the publication.

DANGER — INDICATES AN IMMINENTLY HAZARDOUS SITUATION, WHICH IF NOT AVOIDED, WILL RESULT IN SERIOUS INJURY OR DEATH.

WARNING — INDICATES A POTENTIAL HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, CAN RESULT IN SERIOUS INJURY OR DEATH.

CAUTION — INDICATES A POTENTIAL HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY.

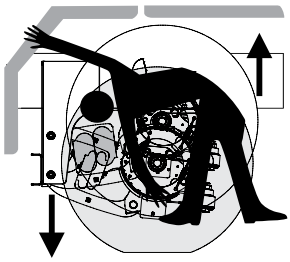
NOTE — An operating procedure, practice condition, etc. which is essential to emphasize.

SERVICE HINT — A helpful suggestion that will make the servicing being performed a little easier and/or faster.

The torque symbol alerts you to tighten fasteners to a specified torque value. Refer to Torque Specifications Section of this publication.

OPERATIONAL SAFETY INSTRUCTIONS

WARNING



LIFT AXLE RAPID MOVEMENT

LIFT AXLE RAPID MOVEMENT CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

IF LIFT AXLE IS OPERATED BY AN AUTOMATIC OR SEMI-AUTOMATIC LIFT AXLE CONTROL SYSTEM, SUCH SYSTEM MAY CAUSE LIFT AXLE TO AUTOMATICALLY RAISE OR LOWER UNDER DIFFERENT CONDITIONS.

LIFT AXLE ACTIVATION AND MOVEMENT MAY VARY DEPENDING ON THE BRAND, CONFIGURATION, AND OPERATING CONDITION OF THE LIFT AXLE CONTROL SYSTEM AND/OR OTHER FACTORS. READ, UNDERSTAND, AND COMPLY WITH ALL APPLICABLE OPERATING INSTRUCTIONS AND SAFETY INFORMATION PROVIDED BY THE LIFT AXLE CONTROL SYSTEM MANUFACTURER AND VEHICLE MANUFACTURER.

ENSURE ALL PERSONNEL ARE CLEAR OF LIFT AXLE BEFORE AND DURING VEHICLE LOADING AND LIFT AXLE ACTIVATION UP OR DOWN.

CAUTION

LIFT AXLE ACTIVATION

EXHAUST ALL PRESSURE IN LIFT AXLE AIR SPRINGS AND VEHICLE AIR SYSTEM BEFORE WORKING ON OR AROUND LIFT AXLE. FAILURE TO DO SO CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

DO NOT LOWER LIFT AXLE WHILE VEHICLE IS MOVING IN REVERSE. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE.

CAUTION

REVERSE LOCKOUT OPERATION

DO NOT ACTUATE STEERABLE LIFT AXLE REVERSE LOCKOUT FEATURE (IF EQUIPPED) WHILE VEHICLE IS TURNING. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE.

BEFORE TRAVELING IN REVERSE:

- ENSURE STEERABLE LIFT AXLE REVERSE LOCKOUT FEATURE (IF EQUIPPED) IS PROPERLY ACTUATED
- RAISE ALL STEERABLE LIFT AXLES NOT EQUIPPED WITH REVERSE LOCKOUT FEATURE.

FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE.

CAUTION

REVERSE CASTER OPERATION

DO NOT LOWER STEERABLE LIFT AXLE EQUIPPED WITH REVERSE CASTER FEATURE WHILE VEHICLE IS MOVING IN REVERSE. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE.

WARNING

LOAD CAPACITY

ADHERE TO THE PUBLISHED CAPACITY RATINGS FOR THE AUXILIARY AXLES. ADD-ON AXLE ATTACHMENTS (I.E. SLIDING FIFTH WHEELS) AND OTHER LOAD TRANSFERRING DEVICES CAN INCREASE THE AUXILIARY AXLES LOAD ABOVE THE RATED AND APPROVED CAPACITIES WHICH CAN RESULT IN FAILURE AND LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

CAUTION

DAILY/PRE-TRIP OPERATOR INSPECTION

DAILY OR BEFORE EACH TRIP, INSPECT LIFT AXLE AND ALL ADJACENT COMPONENTS FOR PROPER OPERATING CONDITION. IDENTIFY AND REPAIR ANY LOOSE OR DAMAGED COMPONENTS. REFER TO HENDRICKSON PUBLICATION NO. H633 FOR ADDITIONAL SERVICE, REPAIR, AND REBUILD INSTRUCTIONS.

GENERAL AND SERVICING SAFETY INSTRUCTIONS

WARNING

FASTENERS

DISCARD USED FASTENERS. ALWAYS USE NEW FASTENERS TO COMPLETE A REPAIR. FAILURE TO DO SO COULD RESULT IN FAILURE OF THE PART, OR MATING COMPONENTS, LOSS OF VEHICLE CONTROL, PERSONAL INJURY, OR PROPERTY DAMAGE.

LOOSE OR OVER TORQUED FASTENERS CAN CAUSE COMPONENT DAMAGE, LOSS OF VEHICLE CONTROL, PROPERTY DAMAGE, OR SEVERE PERSONAL INJURY. MAINTAIN CORRECT TORQUE VALUE AT ALL TIMES. CHECK TORQUE VALUES ON A REGULAR BASIS AS SPECIFIED, USING A REGULARLY CALIBRATED TORQUE WRENCH. TORQUE VALUES SPECIFIED IN THIS TECHNICAL PUBLICATION ARE FOR HENDRICKSON SUPPLIED FASTENERS ONLY. IF NON HENDRICKSON FASTENERS ARE USED, FOLLOW TORQUE SPECIFICATION LISTED IN THE VEHICLE MANUFACTURER'S SERVICE MANUAL.

WARNING

MODIFYING COMPONENTS

DO NOT MODIFY OR REWORK PARTS WITHOUT AUTHORIZATION FROM HENDRICKSON. DO NOT SUBSTITUTE REPLACEMENT COMPONENTS NOT AUTHORIZED BY HENDRICKSON. USE OF MODIFIED, REWORKED, SUBSTITUTE OR REPLACEMENT PARTS NOT AUTHORIZED BY HENDRICKSON MAY NOT MEET HENDRICKSON'S SPECIFICATIONS, AND CAN RESULT IN FAILURE OF THE PART, LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE, AND WILL VOID ANY APPLICABLE WARRANTIES. USE ONLY HENDRICKSON AUTHORIZED REPLACEMENT PARTS.

WARNING

REPAIR AND RECONDITIONING

THE REPAIR OR RECONDITIONING OF AUXILIARY AXLE COMPONENTS THAT ARE BENT, DAMAGED OR OUT OF SPECIFICATIONS IS NOT ALLOWED. ANY AXLE COMPONENTS FOUND TO BE DAMAGED OR OUT OF SPECIFICATIONS MUST BE REPLACED. AXLE COMPONENTS CANNOT BE BENT, WELDED, HEATED, OR REPAIRED WITHOUT REDUCING THE STRENGTH OR LIFE OF THE COMPONENT. FAILURE TO FOLLOW THESE GUIDELINES CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE AND WILL VOID APPLICABLE WARRANTIES.

WARNING

AXLE CAMBER

UNAUTHORIZED WELDING OR MODIFICATIONS CAN CAUSE CRACKS OR OTHER AXLE STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH. DO NOT BEND, WELD OR MODIFY AXLE WITHOUT AUTHORIZATION FROM HENDRICKSON. AXLE CAMBER IS NOT ADJUSTABLE. DO NOT CHANGE THE AXLE CAMBER ANGLE OR BEND THE AXLE BEAM. BENDING THE AXLE BEAM TO CHANGE THE CAMBER ANGLE CAN DAMAGE THE AXLE AND REDUCE AXLE STRENGTH, WILL VOID HENDRICKSON'S WARRANTY AND CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

WARNING

IMPROPER JACKING METHOD

IMPROPER JACKING METHOD CAN CAUSE STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH. DO NOT USE AXLE BEAM OUTBOARD OF AXLE SPRING SEATS. REFER TO VEHICLE MANUFACTURER FOR PROPER JACKING INSTRUCTIONS.

WARNING

DAMAGED AXLE COMPONENTS

IF A VEHICLE EQUIPPED WITH A HENDRICKSON AUXILIARY AXLE IS INVOLVED IN A CRASH, A THOROUGH INSPECTION OF THE AXLE MUST BE PERFORMED NOTING THE CONDITION OF THE AXLE BEAM, KINGPINS, AND KNUCKLE ASSEMBLIES, INCLUDING THE AREAS OF AXLE TO KINGPIN INTERFACE, FOR ANY DAMAGE, GAPS, KINGPIN MOVEMENT OR PLAY. IF ANY COMPONENT APPEARS DAMAGED, OR THE KINGPINS APPEAR TO CONTAIN ANY DAMAGE, GAPS, MOVEMENT OR PLAY, THE COMPLETE AXLE ASSEMBLY MUST BE REPLACED.

IN ADDITION, IN THE EVENT A CRASH RESULTS IN EXCESSIVE SIDE LOAD DAMAGE TO ADJACENT PARTS, SUCH AS A BENT WHEEL, HUB, OR SPINDLE, IT IS STRONGLY RECOMMENDED TO REPLACE SUCH ADJACENT PARTS AND THE COMPLETE AXLE ASSEMBLY.

CONTACT HENDRICKSON TECHNICAL SERVICES DEPARTMENT WITH ANY QUESTIONS. FAILURE TO REPLACE ANY DAMAGED COMPONENTS CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE AND WILL VOID ANY APPLICABLE WARRANTIES.

WARNING

SUPPORT THE VEHICLE PRIOR TO SERVICING

PLACE THE AXLE ON A LEVEL FLOOR AND CHOCK THE WHEELS TO HELP PREVENT THE AXLE FROM MOVING. NEVER WORK UNDER A RAISED AXLE SUPPORTED BY ONLY A FLOOR JACK, WHICH CAN SLIP OR FALL OVER AND RESULT IN SERIOUS PERSONAL INJURY. ALWAYS SUPPORT A RAISED VEHICLE WITH SAFETY STANDS. BLOCK THE WHEELS AND MAKE SURE THE UNIT WILL NOT ROLL BEFORE RELEASING BRAKES.

WARNING

AIR SPRINGS

AIR SPRING ASSEMBLIES MUST BE DEFLATED PRIOR TO LOOSENING ANY ADJACENT HARDWARE. UNRESTRICTED AIR SPRING ASSEMBLIES CAN VIOLENTLY SHIFT. DO NOT INFLATE AIR SPRING ASSEMBLIES WHEN THEY ARE UNRESTRICTED. AIR SPRING ASSEMBLIES MUST BE RESTRICTED BY SUSPENSION OR OTHER ADEQUATE STRUCTURE. DO NOT INFLATE BEYOND PRESSURES RECOMMENDED BY AIR SPRING MANUFACTURER, CONTACT HENDRICKSON TECHNICAL SERVICES FOR DETAILS. IMPROPER USE OR OVER INFLATION MAY CAUSE AIR SPRING ASSEMBLIES TO BURST, CAUSING PROPERTY DAMAGE AND/OR SEVERE PERSONAL INJURY.

WARNING

AIR SPRINGS

EXHAUST ALL PRESSURE IN LIFT AXLE AIR SPRINGS AND VEHICLE AIR SYSTEM BEFORE WORKING ON OR AROUND LIFT AXLE. FAILURE TO DO SO CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

WARNING

AIR SPRINGS

PRIOR TO AND DURING DEFLATION AND INFLATION OF THE AIR SUSPENSION SYSTEM, ENSURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR FROM UNDER THE VEHICLE AND AROUND THE SERVICE AREA, FAILURE TO DO SO CAN CAUSE SEVERE PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE.

CAUTION

AIR SPRINGS

INFLATE THE SUSPENSION SLOWLY AND MAKE SURE THE RUBBER BLADDER OF THE AIR SPRING INFLATES UNIFORMLY AND IS NOT BINDING. FAILURE TO DO SO CAN CAUSE DAMAGE TO THE AIR SPRING AND/OR MOUNTING BRACKETS AND VOID WARRANTY.

CAUTION

PROCEDURES AND TOOLS

A MECHANIC USING A SERVICE PROCEDURE OR TOOL WHICH HAS NOT BEEN RECOMMENDED BY HENDRICKSON MUST FIRST SATISFY HIMSELF THAT NEITHER HIS SAFETY NOR THE VEHICLE'S SAFETY WILL BE JEOPARDIZED BY THE METHOD OR TOOL SELECTED. INDIVIDUALS DEVIATING IN ANY MANNER FROM THE INSTRUCTIONS PROVIDED ASSUME ALL RISKS OF POTENTIAL PERSONAL INJURY OR DAMAGE TO EQUIPMENT INVOLVED.

WARNING

PERSONNEL PROTECTIVE EQUIPMENT

ALWAYS WEAR PROPER EYE PROTECTION AND OTHER REQUIRED PERSONAL PROTECTIVE EQUIPMENT TO HELP PREVENT PERSONAL INJURY WHEN YOU PERFORM VEHICLE MAINTENANCE, REPAIR OR SERVICE.

WARNING

OFF ROADWAY TOWING

HENDRICKSON DOES NOT RECOMMEND TOWING A VEHICLE BY THE AUXILIARY AXLE. DOING SO WILL DAMAGE THE AXLE AND VOID ANY APPLICABLE WARRANTY.

SECTION 3
Lift Axle Operation

CONTROLLING INSIDE OR OUTSIDE MOUNTED AIR KITS

1. If vehicle is already running, please proceed to the appropriate section below.
2. Set parking brake of truck.
3. Turn your vehicle ignition to on position.
4. Press start switch and release when engine is started.
5. Allow the vehicle to idle until air pressure has reached compressor cut-out point, (typically 120 psi).

RAISING YOUR LIFT AXLE

1. If controls are inside mounted, move the control mechanism to the axle up position.

WARNING

DO NOT TRAVEL AT MORE THAN 15 MPH WHEN ACTUATING YOUR LIFT AXLE. COMPONENT DAMAGE CAN OTHERWISE OCCUR.

2. If controls are outside mounted, ensure vehicle is stopped and parking brake is set. Exit vehicle, go to and open air control enclosure. Move the control panel mechanism to the axle up position.
3. Visually confirm that the axle is lifting.

NOTE

Air pressure may drop during suspension lifting process.

4. Axle should be completely lifted when truck air pressure returns to the air compressor cut-out point (typically 120 psi).

LOWERING YOUR LIFT AXLE

1. If controls are inside mounted, move the control panel mechanism to the axle down position.

WARNING

DO NOT TRAVEL AT MORE THAN 15 MPH WHEN ACTUATING YOUR LIFT AXLE. COMPONENT DAMAGE CAN OCCUR.

2. If the controls are outside mounted, ensure the vehicle is stopped and parking brake is set. Exit vehicle, go to and open air control enclosure. Move the control panel mechanism to the axle down position.
3. Using the regulator, adjust air pressure on the gauge to appropriate air pressure for vehicle load conditions, see Air Pressure Load Information Section in this publication.

NOTE

Air system pressure may drop during suspension lowering process.

4. Axle should be completely lowered and supporting pre-determined load when system air compressor cut-out point is reached (typically 120 psi).

REVERSE CASTER OPERATION

CAUTION

DO NOT LOWER STEERABLE LIFT AXLE EQUIPPED WITH REVERSE CASTER FEATURE WHILE VEHICLE IS MOVING IN REVERSE. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE.

To ensure proper operation of the Hendrickson steerable lift axles with the reverse caster feature:

1. The lift axle must be in down position and the vehicle transmission must be in reverse.

REVERSE LOCKOUT OPERATION (if equipped)

CAUTION

DO NOT ACTUATE REVERSE LOCKOUT WHEN VEHICLE IS TURNING, DOING SO CAN CAUSE COMPONENT DAMAGE.

Actuation of reverse lockout will depend on the model of lift axle control kit installed on the vehicle and any design restrictions in place.

Refer to Hendrickson Publication No. H719 for lift axle control kits operation instructions. Contact Hendrickson (800.660.2829) for information on Reverse Lockout Operation design restrictions.

SECTION 4

Preventive Maintenance

DAILY / PRE-TRIP OPERATOR INSPECTION

Daily or before each trip, inspect lift axle and all adjacent components for proper operating condition. Identify and repair any loose or damaged components. Refer to Hendrickson Publication No. H633 for additional service, repair, and rebuild instructions.

NOTE Replace any safety decals that are faded, torn, missing, illegible, or otherwise damaged. Contact Hendrickson to order replacement labels.

GENERAL INSPECTION

Following appropriate inspection procedure is important to help ensure the proper maintenance and operation of the suspension system and component parts function to their highest efficiency.

- **Fasteners** — Inspect for any loose or damaged fasteners on the entire lift axle suspension. Make sure all fasteners are tightened to the specified torque. Refer to Tightening Torque Specifications Section in this publication if fasteners are supplied by Hendrickson, non-Hendrickson fasteners, refer to the vehicle manufacturer. Use a calibrated torque wrench to check torque in a tightening direction. As soon as the fastener starts to move, record the torque. Correct the torque if necessary. Replace any worn or damaged fasteners.
- **Air springs** — Visually Inspect suspension for debris rubbing against air springs or chaffing. Clear debris and/or replace as necessary.

HENDRICKSON RECOMMENDED MAINTENANCE INTERVALS

COMPONENT	INITIAL BREAK-IN	INTERVALS AFTER INITIAL BREAK-IN	PROCEDURE
Wheel Bearings	5,000 mi.	8,000 mi. or every 2 months, whichever comes first	Verify end play is between 0.001" and 0.005" adjust as required, and grease or oil
Tie Rod Ends		10,000 mi. or monthly, whichever comes first	Verify torque, inspect for leaking, and lubricate
Kingpin Bushings		10,000 mi. or 6 months, whichever comes first	Check for wear and grease
Compliant Tie Rod Ends		5,000 mi. or as needed, whichever comes first	Check bushing for wear and verify torque
Pivot Connections			Verify torque
Stabilizers			Check for oil leak and adequate return
Shift Chamber	3,000 mi.	20,000 mi. or 10 months, whichever comes first	Inspect for leaking, inspect shift chamber components for wear

HENDRICKSON RECOMMENDED LUBRICATION SPECIFICATIONS

COMPONENT	GREASE
Kingpin	NLGI-1 or NLGI-2 grease
Tie Rod Ends	EP-1 or EP-2 grease
Wheel Bearings	NLGI-1 or NLGI-2 grease; GL-5 gear lubricant

WARNING FAILURE TO LUBRICATE THE WHEEL BEARINGS CAN RESULT IN COMPONENT DAMAGE, BODILY INJURY OR DEATH.

SECTION 5

Air Pressure Load Information

The air pressure load chart(s) on the following pages are intended to assist vehicle owners, operators, and fleet managers (i) to estimate the lift axle air system pressure necessary to support a particular target lift axle load, and (ii) to meet applicable federal, state/provincial and/or local vehicle weight regulations.

The air pressure load chart(s) list estimated lift axle air system pressure requirements based upon particular sets of:

1. Ride air spring extension measurements (refer to Figure 6-1);
2. Axle lift measurements (refer to Figure 6-1); and
3. Target lift axle loads.

The estimated lift axle air system pressure requirements listed in the air pressure load chart(s) are applicable to a range of lift axle ride heights and tire sizes intended for Hendrickson steerable lift axle applications. The actual lift axle air system pressure needed to support a particular target lift axle load may vary depending upon the above-referenced parameters, as well as vehicle and lift axle configuration, operation, payload, service and other factors. If necessary, vehicle operators should use appropriate truck/trailer weight scale equipment to measure actual lift axle loads.

NOTE

Any/all penalties incurred from improperly loaded vehicles or improperly installed, modified, operated, serviced or maintained lift axle systems are the sole responsibility of the vehicle owner, operator, and/or fleet manager. Hendrickson Auxiliary Axle Systems shall not be responsible for any such penalties, or any damage or other adverse effects on vehicle and/or lift axle form, fit, or function due to any such improper activity. Refer to Hendrickson Steerable Installation Guide, Publication No. H633 for proper lift axle installation and additional service, repair, and rebuild instructions.

NOTE

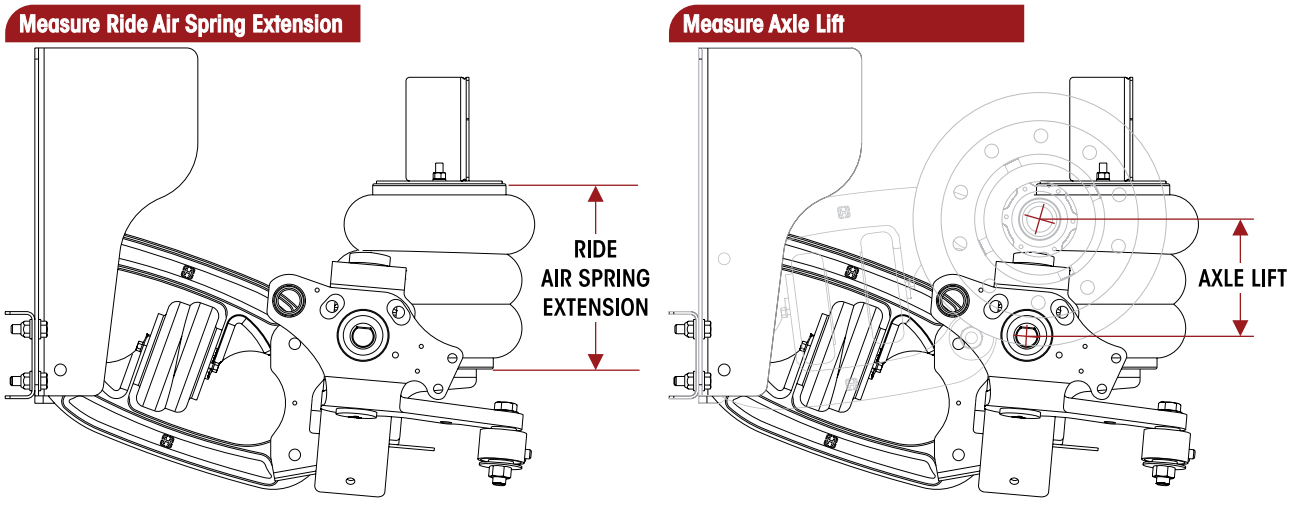
It is the responsibility of the vehicle owner, operator, and/or fleet manager to ensure the vehicle and lift axle(s) comply with all applicable federal, state/provincial and/or local weight, dimension and configuration regulations under loaded and unloaded conditions. Consult your appropriate regulatory and/or law enforcement authorities to determine how such regulations may (i) vary by operating location, and (ii) apply to your particular vehicle, lift axle(s), and applications.

HOW TO MEASURE RIDE AIR SPRING EXTENSION AND AXLE LIFT

⚠ WARNING

PRIOR TO AND DURING DEFLATION AND INFLATION OF THE AIR SUSPENSION SYSTEM, ENSURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR FROM UNDER THE VEHICLE AND AROUND THE SERVICE AREA. FAILURE TO DO SO CAN CAUSE SERIOUS PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE.

FIGURE 6-1



AIR PRESSURE LOAD CHARTS

COMPOSILITE SCT 10										
*RIDE AIR SPRING EXTENSION (in inches)		10.5"	11.0"	11.5"	12.0"	12.5"	13.0"	13.5"	14.0"	14.5"
*AXLE LIFT (in inches)		6.0"	6.5"	7.0"	7.5"	8.0"	8.5"	9.0"	9.5"	10.0"
AXLE LOAD (in pounds)	5,000	31	32	33	34	35	37	39	41	44
	5,500	34	35	37	38	40	41	43	46	49
	6,000	38	39	41	42	44	46	48	51	54
	6,500	42	43	44	46	48	50	52	55	59
	7,000	45	47	48	50	52	54	57	60	64
	7,500	49	50	52	54	56	59	61	65	68
	8,000	53	54	56	58	60	63	66	69	73
	8,500	56	58	60	62	64	67	70	74	78
	9,000	60	62	64	66	68	71	74	78	82
	9,500	63	65	67	70	72	75	79	83	87
	10,000	67	69	71	74	76	79	83	87	91

ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS (in PSI)

COMPOSILITE SCT 13 / SCO 13										
*RIDE AIR SPRING EXTENSION (in inches)		10.5"	11.0"	11.5"	12.0"	12.5"	13.0"	13.5"	14.0	14.5"
*AXLE LIFT (in inches)		6.0"	6.5"	7.0"	7.5"	8.0"	8.5"	9.0"	9.5"	10.0"
AXLE LOAD (in pounds)	5,000	31	32	33	35	36	38	40	42	45
	5,500	35	36	37	39	40	42	44	47	50
	6,000	39	40	41	43	44	46	49	51	55
	6,500	42	44	45	47	49	51	53	56	59
	7,000	46	47	49	51	53	55	58	61	64
	7,500	49	51	53	55	57	59	62	65	69
	8,000	53	55	56	59	61	63	66	70	74
	8,500	57	58	60	63	65	68	71	74	78
	9,000	60	62	64	66	69	72	75	79	83
	9,500	64	66	68	70	73	76	79	83	88
	10,000	67	69	72	74	77	80	84	88	92
	10,500	71	73	75	78	81	84	88	92	97
	11,000	75	77	79	82	85	88	92	96	101
	11,500	78	80	83	86	89	92	96	101	106
	12,000	82	84	87	90	93	96	100	105	110
	12,500	85	88	90	93	97	100	104	109	114
	13,000	89	91	94	97	101	104	109	113	119
	13,500	92	95	98	101	104	108	113	118	123

ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS (in PSI)

* To measure ride air spring extension and axle lift, refer to Figure 6-1.

COMPOSILITE SCT 20 / SCO 20

*RIDE AIR SPRING EXTENSION (in inches)		10.5"	11.0"	11.5"	12.0"	12.5"	13.0"	13.5"	14.0"	14.5"	
*AXLE LIFT (in inches)		6.0"	6.5"	7.0"	7.5"	8.0"	8.5"	9.0"	9.5"	10.0"	
AXLE LOAD (in pounds)	6,000	22	23	23	24	25	26	27	28	30	ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS (in PSI)
	7,000	27	28	28	29	30	31	32	34	37	
	8,000	31	33	33	34	35	37	38	40	43	
	9,000	36	38	38	39	40	42	44	46	49	
	10,000	41	43	43	44	46	48	49	52	56	
	11,000	45	47	47	49	51	53	55	58	62	
	12,000	50	52	52	54	56	58	61	64	68	
	13,000	55	57	57	59	61	64	66	70	75	
	14,000	59	62	62	64	66	69	72	76	81	
	15,000	64	67	67	69	72	75	78	82	87	
	16,000	68	72	72	74	77	80	83	88	94	
	17,000	73	77	77	79	82	86	89	94	100	
	18,000	78	82	81	84	87	91	95	100	106	
	19,000	82	86	86	89	92	97	100	106	112	
	20,000	87	91	91	95	98	102	106	111	119	

TOUGHLIFT LK 25

*RIDE AIR SPRING EXTENSION (in inches)		19.0"	20.0"	21.0"	22.0"	23.0"	24.0"	
*AXLE LIFT (in inches)		4.5"	5.0"	5.5"	6.0"	6.5"	7.0"	
AXLE LOAD (in pounds)	8000	23	24	25	27	30	33	ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS (in PSI)
	9000	27	28	29	32	34	38	
	10000	31	32	33	36	39	43	
	11000	35	36	37	40	43	48	
	12000	39	40	41	44	48	53	
	13000	43	44	45	48	52	58	
	14000	47	48	49	53	57	63	
	15000	51	52	53	57	61	68	
	16000	55	56	57	61	66	73	
	17000	59	60	61	65	71	78	
	18000	64	65	65	70	75	83	
	19000	68	68	69	74	80	87	
	20000	71	72	73	78	84	92	
	21000	75	76	77	82	88	97	
	22000	78	80	81	86	93	101	
	23000	82	84	85	91	97	106	
	24000	86	88	89	95	102	111	
	25000	90	92	93	99	106	116	

* To measure ride air spring extension and axle lift, see Figure 6-1.

SECTION 6
Torque Specifications

HENDRICKSON RECOMMENDED TORQUE SPECIFICATIONS

	DESCRIPTION	SIZE	TORQUE VALUE (FOOT POUNDS)
1.	Pivot Bolt / Shift Arm	7/8"	425-475
2.	Pivot Bolt	3/4"	225-250
3.	Frame Attachment Bolt (Recommended)	3/4"	300-325
4.	Air Spring Bolt (Lower)	3/8"	25-30
5.	Air Spring Bolt (Lower)	1/2"	25-30
6.	Air Spring Nut (Upper)	3/4"	45-50
7.	Air Spring Nut (Upper)	1/2"	45-50
8.	Compliant Tie Rod (CTR) Attachment	7/8"	250-300
9.	CTR Adjustment	5/8"	180-190
10.	Round Tube Tie Rod Attachment	7/8"	125-180
11.	Round Tube Tie Rod Adjustment	1/2"	45-50
12.	Heavy Duty (HD) Tie Rod Attachment	7/8"	250-300
13.	HD Tie Rod Adjustment	5/8"	180-190
14.	Stabilizer Shock Bolt	3/4"	75-120
15.	Suspension Cross Member Bolt	5/8"	160-180
16.	Bolt-on Brake Attachments	5/8"	150-180
17.	U-bolts	7/8"	450-495
18.	Shift Chamber Attachment	5/8"	130-150
19.	Shift Chamber Yoke Attachment	5/8"	35-45
20.	Shift Chamber Attachment	7/16"	40-50
21.	Shift Chamber Yoke Attachment	7/16"	70-90
22.	Radius Rod Bolt	7/8"	245-295

NOTE: Torque values shown apply only if Hendrickson supplied fasteners are used. If non Hendrickson fasteners are used, follow the torque specification listed in vehicle manufacturer's service manual.

SECTION 7
Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE	CORRECTION
Not getting the desired load on the axle	Not having proper air pressure to the ride bags	a. Adjust the air pressure at regulator valve b. Verify sufficient pressure to the air control system
	Air control system not properly installed	Check plumbing of air system, refer to Publication No. H719
	Mounted too high Incorrect ride height specification	a. Larger tire b. Change axle seat height
Unit not getting the correct lift	Lift air springs not getting proper air pressure	a. Check system pressure b. Check air system plumbing, refer to Publication No. H719 c. Check air spring pressure
	Interference with chassis, drive line or other components	Inspect for interference
	Unit not installed properly	Check installation with factory installation drawing
Unit has vertical hop	Not running sufficient load	Increase air pressure
	Unbalanced tires	Balance tires
Axle Shimmy	Improper caster setting	Readjust caster if possible
	Toe setting is incorrect	Readjust toe setting, refer to Hendrickson Publication No. H674
	Axle bolt connection loose	Re-torque to factory torque values, see Torque Specification Section in this publication
	Pivot bolt connection loose	Re-torque to factory torque values, see Torque Specification Section in this publication
	Axle out of alignment	Re-align axle
	Tires different size on each side	Use same size tires
	Tires unbalanced	Balance tires
	Air pressure in tires different from side to side	Equalize air pressure
	Stabilizers worn	Verify stabilizer resistance and replace as necessary
Axle does not track forward	Toe setting	Set toe, refer to Hendrickson Publication No. H674
Axle does not track in reverse. (Reverse Caster Only)	Inadequate psi to forward shift chambers	Increase psi minimum (100 psi)
	One or both forward shift chambers is damaged	Replace chamber(s)
	Hanger bracket mounted incorrectly on the frame rail	Remount frame rail bracket
	Installed unit is not designed to accommodate the reverse castor option	a. Contact Hendrickson Customer Service to spec out a unit with reverse caster if required or b. Lift axle is in reverse, if reverse caster is not necessary
Axle in reverse caster when lifted.	Incorrect air line plumbing	Correct air plumbing, refer to Hendrickson Publication No. H719

HENDRICKSON

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