HENDRICKSON OWNER'S MANUAL

Non-Steerable Auxiliary Axle Systems

SUBJECT: Operation and Preventive Maintenance Procedures
LIT NO: OM-H757
DATE: August 2014 **REVISION:** A

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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 Non-Steerable Auxiliary Axle Suspension Systems. Refer to Hendrickson Publication No. H621 Non-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)

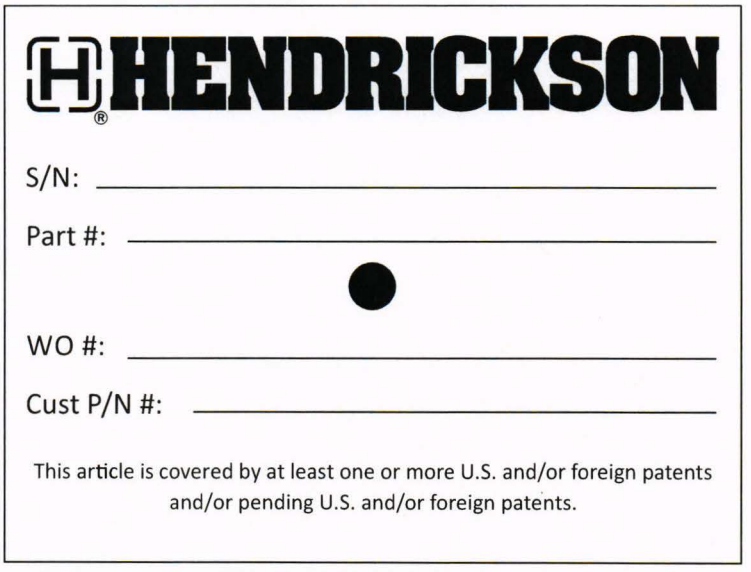
NOTE All Hendrickson Auxiliary Lift Axles are manufactured with a serial number plate to help in identification, see Figure 2-1.

When identifying your Hendrickson Auxiliary Lift Axle visually, see Figures 2-2 to 2-7 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

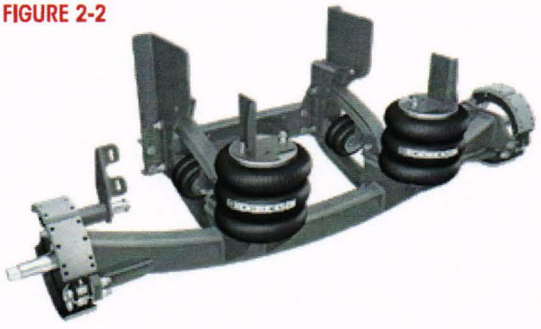


HENDRICKSON SERIAL-TAG CUBB #1001970 210322/1 8/8/12

NON-STEERABLE MODELS

Hendrickson's line of non-steerable lift axles offer the rugged reliability expected from Hendrickson in both truck and trailer applications. The non-steerable line is engineered for rugged on- and off-road applications accommodating a wide range of ride heights. Composed of the popular COMPOSILITE™ FX and TOUGHLIFT™ FM and TOUGHLIFT™ FR, capacities range from 13,500 to 25,000 pounds.

FIGURE 2-2

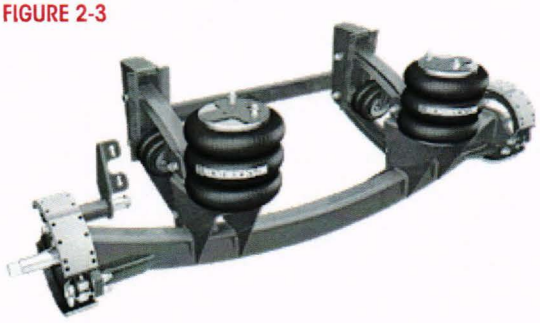


COMPOSILITE™ FXT | TRUCK

The COMPOSILITE FXT, for non-steerable truck applications is designed with a lightweight fabricated axle that accommodates both pusher and tag applications. The COMPOSILITE FXT includes components that are common with the SC steerable lift axle family to ease replacement and maintenance procedures on the same vehicle.

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

FIGURE 2-3



COMPOSILITE™ FXW • FXB | TRAILER

The COMPOSILITE FXW and FXB for non-steerable trailer applications, is designed with a lightweight fabricated axle that accommodates both pusher and tag applications. The FXW and FXB include components that are common with the COMPOSILITE SC steerable lift axle family to ease replacement and maintenance procedures on the same vehicle. Trailer applications of the FX13 are available in weld-on and bolt-on configurations.

Available in 13.5K pound capacity. Available in weld-on (FXW) or bolt-on (FXB).

FIGURE 2-4

COMPOSILITE™ FXO | ROLL OFF TRUCK

The COMPOSILITE FXO, for non-steerable roll-off truck applications is designed with a lightweight fabricated axle accommodating capacities up to 13,500 pounds. The FXO includes components that are common with the COMPOSILITE SCO13 steerable lift axle to ease replacement and maintenance procedures on the same vehicle. Its scalloped hangers, inbound positioned ride springs, and parallelogram components aid in the clearance around roll-off cylinders.

Available in capacities up to 13.5K pounds.

FIGURE 2-5

TOUGHLIFT™ FMT | TRUCK

The TOUGHLIFT FMT is engineered for rugged on- and off-road truck applications accommodating capacities up to 25,000 pounds in both pusher and tag axle configurations. The integration of Hendrickson's TRI-FUNCTIONAL® bushing helps absorb brake and acceleration forces while providing superior roll-control. The QUIK-ALIGN feature simplifies the alignment process by eliminating welding of the alignment collar.

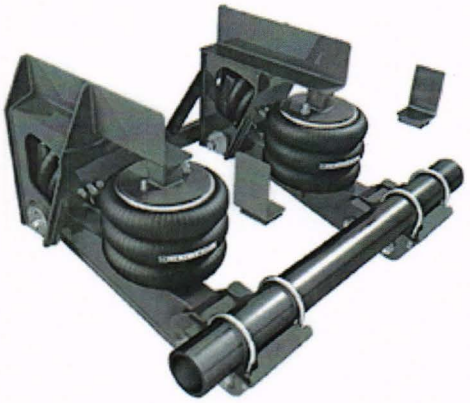
Available in capacities up to 25K pounds.

FIGURE 2-6

TOUGHLIFT™ FMW • FMB | TRAILER

The TOUGHLIFT FMW and FMB are engineered for rugged on- and off-road trailer applications accommodating capacities up to 22,000 pounds in both weld-on and bolt-on configurations. The integration of Hendrickson's TRI-FUNCTIONAL bushing helps absorb brake and acceleration forces while providing superior roll-control. The QUIK-ALIGN feature simplifies the alignment process by eliminating welding of the alignment collar

Available in capacities up to 22K pounds. Available in weld-on (FMW) or bolt-on (FMB).



TOUGHLIFT™ FRT | TRUCK

The TOUGHLIFT FRT is designed to provide high lifting capability, accommodate various ride heights and facilitate easier installation in truck applications. The axle is positioned at the rear of the suspension, allowing for greater clearance of the vehicle undercarriage. Available in short and medium beam versions to accommodate a variety of frame packaging dimensions with a capacity up to 13,000 pounds.

Available in 13K pound capacity.

NON-STEERABLE LIFT AUXILIARY AXLES DATES OF ACTIVE PRODUCTION

MODEL	MODEL REPLACED BY	PART NUMBER PREFIX		AFTERMARKET		OEM / ON-LINE	
		TRUCK	TRAILER	BEGIN	END	BEGIN	END
TOUGHLIFT FM		MT20, MT22	MW20, MB20, MW22, MB22	2014	Present	2014	Present
TOUGHLIFT FR		R2MT13, R2MT16					
COMPOSILITE FX		FXT08, FXT10, FXT13	FXW13, FXB13	2012	Present	2012	Present
	COMPOSILITE FX	UCFT13		2004	2012	2007	2012
HLR-2	TOUGHLIFT FR	R2LT10		2003	2013	2003	2013
		R2MT13		2003	2014	2003	06/2014
HLM-2	TOUGHLIFT FM	MT16, MT20, MT22, MT25		2003	2014	2003	06/2014
			MW20, MB20, MW22, MB22	2003	2014	2004	06/2014
HLM-1	HLM-2	HLM		1992	1997	–	–
HLN		NT13	NB13, NW13	1996	Present	–	–
COMPOSILITE ROF	COMPOSILITE FXO			2008	2010	2008	2010
COMPOSILITE FXO				2010	Present	2010	Present

SECTION 3
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.

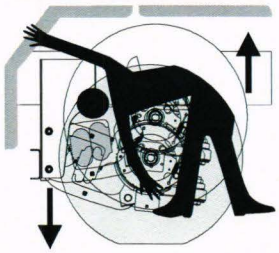
NOTE — An operating procedure, practice condition, etc., which is essential to emphasize.

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

DO NOT LOWER LIFT AXLE WHILE VEHICLE IS IN MOTION (FORWARD OR REVERSE) ABOVE 10 MPH. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE AND PREMATURE COMPONENT WEAR.

CAUTION

NAVIGATING A 90 DEGREE CURVE OR TURN

TO MINIMIZE PREMATURE TIRE WEAR OR POSSIBLE DAMAGE TO LIFT AXLE COMPONENTS, THE LIFT AXLE MUST BE IN THE RAISED POSITION PRIOR TO NAVIGATING A 90 DEGREE OR TIGHTER CURVE OR TURN.

WARNING

LOAD CAPACITY

ADHERE TO THE PUBLISHED CAPACITY RATINGS FOR THE LIFT AXLES. ADD-ON AXLE ATTACHMENTS (I.E. SLIDING FIFTH WHEELS) AND OTHER LOAD TRANSFERRING DEVICES CAN INCREASE THE LIFT 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. H621 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 LIFT 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

LIFT AXLE CAMBER

UNAUTHORIZED WELDING OR MODIFICATIONS CAN CAUSE CRACKS OR OTHER LIFT AXLE STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH. DO NOT BEND, WELD OR MODIFY LIFT AXLE WITHOUT AUTHORIZATION FROM HENDRICKSON. LIFT AXLE CAMBER IS NOT ADJUSTABLE. DO NOT CHANGE THE LIFT AXLE CAMBER ANGLE OR BEND THE LIFT AXLE BEAM. BENDING THE LIFT AXLE BEAM TO CHANGE THE CAMBER ANGLE CAN DAMAGE THE AXLE AND REDUCE LIFT 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 LIFT AXLE BEAM OUTBOARD OF LIFT AXLE SPRING SEATS. REFER TO VEHICLE MANUFACTURER FOR PROPER JACKING INSTRUCTIONS.

⚠ WARNING

DAMAGED AXLE COMPONENTS

IF A VEHICLE EQUIPPED WITH A HENDRICKSON LIFT 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 VEHICLE ON A LEVEL FLOOR AND CHOCK THE WHEELS TO HELP PREVENT THE VEHICLE FROM MOVING. PRIOR TO SERVICING A VEHICLE IN THE RAISED POSITION, PROPERLY SUPPORT THE VEHICLE WITH SAFETY STANDS. DO NOT WORK AROUND OR UNDER A RAISED VEHICLE SUPPORTED ONLY WITH FLOOR JACKS OR OTHER LIFTING DEVICES, FAILURE TO DO SO CAN CAUSE DEATH, PERSONAL INJURY OR DAMAGE TO COMPONENTS.

⚠ WARNING

SUPPORT THE LIFT AXLE PRIOR TO SERVICING

PLACE THE VEHICLE ON A LEVEL FLOOR AND CHOCK THE WHEELS TO HELP PREVENT THE VEHICLE FROM MOVING. PRIOR TO SERVICING A LIFT AXLE IN THE RAISED POSITION, (1) PROPERLY SUPPORT THE LIFT AXLE WITH SAFETY STANDS, AND (2) RELEASE ALL AIR PRESSURE IN THE LIFT AXLE AIR SPRINGS AND RIDE SPRINGS. DO NOT WORK AROUND OR UNDER A RAISED LIFT AXLE SUPPORTED ONLY WITH FLOOR JACKS OR OTHER LIFTING DEVICES, FAILURE TO DO SO CAN CAUSE DEATH, PERSONAL INJURY OR DAMAGE TO COMPONENTS.

⚠ 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 LIFT AXLE. DOING SO WILL DAMAGE THE AXLE AND VOID ANY APPLICABLE WARRANTY.

SECTION 4

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 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.
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.

⚠ CAUTION DO NOT LOWER LIFT AXLE WHILE VEHICLE IS IN MOTION (FORWARD OR REVERSE) ABOVE 10 MPH. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE AND PREMATURE COMPONENT WEAR.

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).

NAVIGATING A 90 DEGREE CURVE OR TURN

⚠ CAUTION TO MINIMIZE PREMATURE TIRE WEAR OR POSSIBLE DAMAGE TO LIFT AXLE COMPONENTS, THE LIFT AXLE MUST BE IN THE RAISED POSITION PRIOR TO NAVIGATING A 90 DEGREE OR TIGHTER CURVE OR TURN.

SECTION 5

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. H621 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
Brake Chamber	3,000 mi.	20,000 mi. or 10 months, whichever comes first	Inspect for leaking, inspect brake chamber components for wear
Wheel Seals	5,000 mi.	5,000 mi. or every 2 months, whichever comes first	Inspect seals for leaks **NOTE:** If the hub or drum are removed for service, wheel seals will require replacement.

HENDRICKSON RECOMMENDED LUBRICATION SPECIFICATIONS

COMPONENT	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 6
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 Non-Steer 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 Non-Steerable Installation Guide, Publication No. H621 for proper lift axle installation and additional service, repair, and rebuild instructions.

NOTE

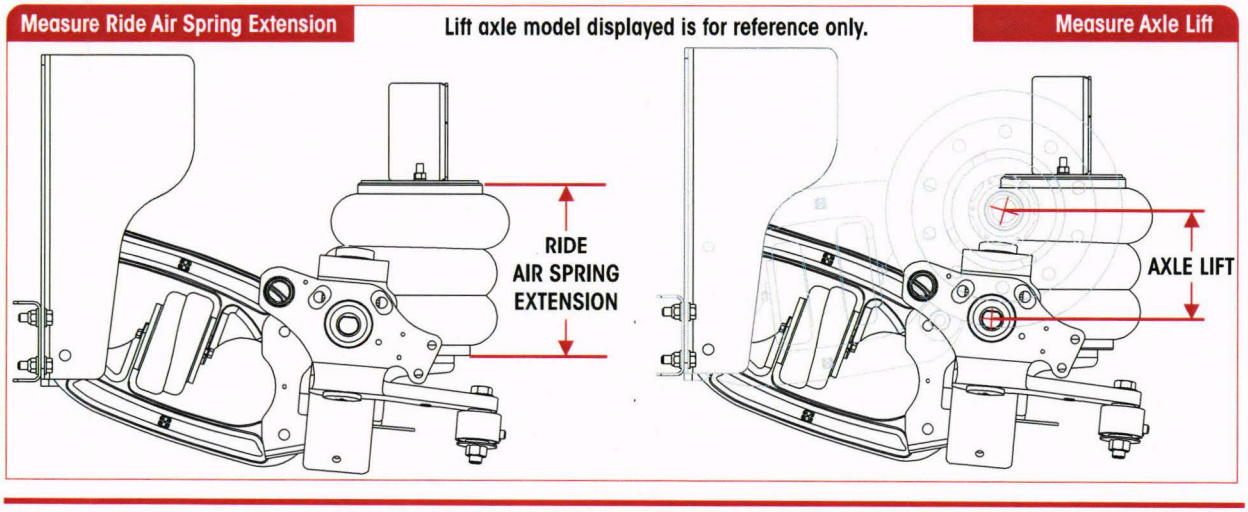
It is the responsibility of the vehicle owner, operator, and/or fleet manager to ensure the vehicle and lift axle(s) comply with all applicable federal, state/provincial and/or local weight, dimension and configuration regulations under loaded and unloaded conditions. Consult your appropriate regulatory 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 FXT 8K • FXT 10K										
*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	32	33	34	35	37	38	40	42	45
	5,500	35	37	38	39	41	43	45	47	50
	6,000	39	40	42	43	45	47	49	52	55
	6,500	43	44	45	47	49	51	54	57	60
	7,000	46	48	49	51	53	55	58	61	65
	7,500	50	51	53	55	57	60	62	66	70
	8,000	53	55	57	59	61	64	67	70	74
	8,500	57	59	61	63	65	68	71	75	79
	9,000	61	63	65	67	69	72	76	79	84
	9,500	64	66	68	71	73	76	80	84	88
	10,000	68	70	72	75	77	80	84	88	93

ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS (in PSI)

COMPOSILITE FXT 13.5K • FXO 13.5K • FXW 13.5K • FXB 13.5K										
*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	30	31	32	33	35	36	38	40	43
	5,500	34	35	36	37	39	41	43	45	48
	6,000	37	39	40	41	43	45	47	50	53
	6,500	41	42	44	45	47	49	52	54	58
	7,000	45	46	48	49	51	54	56	59	63
	7,500	48	50	51	53	55	58	61	64	67
	8,000	52	53	55	57	59	62	65	68	72
	8,500	55	57	59	61	64	66	69	73	77
	9,000	59	61	63	65	68	70	74	77	82
	9,500	63	65	67	69	72	747	78	82	86
	10,000	66	68	70	73	76	79	82	86	91
	10,500	70	72	74	77	80	83	86	91	95
	11,000	73	76	78	81	84	87	91	95	100
	11,500	77	79	82	84	88	91	95	99	104
	12,000	80	83	85	88	91	95	99	104	108
	12,500	84	86	89	92	95	99	103	108	113
	13,000	88	90	93	96	99	103	107	112	117
	13,500	91	94	97	100	103	107	111	116	121

ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS (in PSI)

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

TOUGHLIFT FRT 13K								
*RIDE AIR SPRING EXTENSION (in inches)		10.75"	11.0"	11.25"	11.63"	12.0"	12.13	12.5"
*AXLE LIFT (in inches)		6.0"	6.5"	7.0"	7.5"	8.0"	8.5"	9.0"
AXLE LOAD (in pounds)	5,000	41	43	45	47	48	49	50
	5,500	45	47	49	50	52	54	55
	6,000	48	50	52	54	56	58	60
	6,500	51	53	55	57	59	61	63
	7,000	53	55	57	60	62	64	66
	7,500	58	38	38	39	40	42	44
	8,000	62	64	65	68	70	72	74
	8,500	66	68	69	72	74	76	78
	9,000	70	72	73	76	78	80	81
	9,500	74	75	77	79	82	83	85
	10,000	77	79	81	83	85	87	89
	10,500	80	82	84	86	88	90	92
	11,000	82	84	86	89	91	93	95
	11,500	86	88	90	92	95	96	98
	12,000	90	92	93	96	98	100	101
	12,500	93	94	96	98	101	103	105
	13,000	95	97	99	101	103	106	108

ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS (in PSI)

TOUGHLIFT FMT 25K / FMW 25K / FMB 25K								
*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)	8,000	26	27	28	30	33	36	
	9,000	30	31	32	35	37	41	
	10,000	34	35	36	39	42	46	
	11,000	38	39	40	43	46	51	
	12,000	42	43	44	47	51	56	
	13,000	46	47	48	51	55	61	
	14,000	50	51	52	56	60	66	
	15,000	54	55	56	60	64	71	
	16,000	58	59	60	64	69	76	
	17,000	62	63	64	68	74	81	
	18,000	67	68	68	73	78	86	
	19,000	71	71	72	77	83	90	
	20,000	74	75	76	81	87	95	
	21,000	78	79	80	85	91	100	
	22,000	81	83	84	89	96	104	
	23,000	85	87	88	94	100	109	
	24,000	89	91	92	98	105	114	
	25,000	93	95	96	102	109	119	

ESTIMATED AIR SYSTEM PRESSURE REQUIREMENTS

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

SECTION 7

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.	Suspension Cross Member Bolt	5/8"	160-180
9.	Bolt-on Brake Attachments	5/8"	150-180
10.	U-bolts	7/8"	450-495
11.	Brake Chamber Attachment	5/8"	130-150
12.	Brake Chamber Yoke Attachment	5/8"	35-45
13.	Brake Chamber Attachment	7/16"	40-50
14.	Brake Chamber Yoke Attachment	7/16"	70-90
15.	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 8
Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE	CORRECTION
Lift axle not getting the desired load on the axle	Improper air pressure to the air springs	a. Adjust the air pressure at regulator valve to increase ride spring pressure. b. Verify sufficient pressure to the air control system, see Air Pressure Load Charts in the Air Pressure Load Information Section of this publication.
	Air control system not properly installed	Check plumbing of air system, refer to Publication No. H719
	Lift axle mounted too high or incorrect ride height specification	a. Spec a larger diameter tire, if desired height is not achieved then, change axle seat height
The lift axle is not getting the correct lift	Lift axle air springs not getting proper air pressure	a. Check system air pressure b. Check air system plumbing, refer to Publication No. H719 c. Check lift spring pressure
	Interference with chassis, drive line or other components	Inspect for interference
	Lift axle not installed properly	Check installation with factory installation drawing
Lift axle has a vertical hop	Insufficient load in the air system	Adjust the air pressure at regulator valve to increase ride spring pressure.
	Unbalanced tires	Balance tires
Lift axle has excessive lateral movement	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
	Lift axle out of alignment	Re-align lift axle
	Different size tires on each side	Use same size tires
	Tires are unbalanced	Balance tires
	Air pressure in tires different from side to side	Equalize air pressure in tires
Lift axle in reverse caster when lifted	Incorrect air line plumbing	Correct air plumbing, refer to Hendrickson Publication No. H719
Excessive tire wear	Lift axle is not raised before vehicle turns or curves greater than 90 degrees are navigated.	**⚠ CAUTION** TO MINIMIZE PREMATURE TIRE WEAR OR POSSIBLE DAMAGE TO LIFT AXLE COMPONENTS, THE LIFT AXLE MUST BE IN THE RAISED POSITION PRIOR TO NAVIGATING A 90 DEGREE OR TIGHTER CURVE OR TURN.
	Lift axle out of alignment	Re-align axle. Reference Hendrickson Publication No. H621

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