

H TECHNICAL PROCEDURE

TRAILER SUSPENSION SYSTEMS

SUBJECT: Non-delay Height Control Valve
Installation Procedure

LIT NO: L668

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REVISION: G

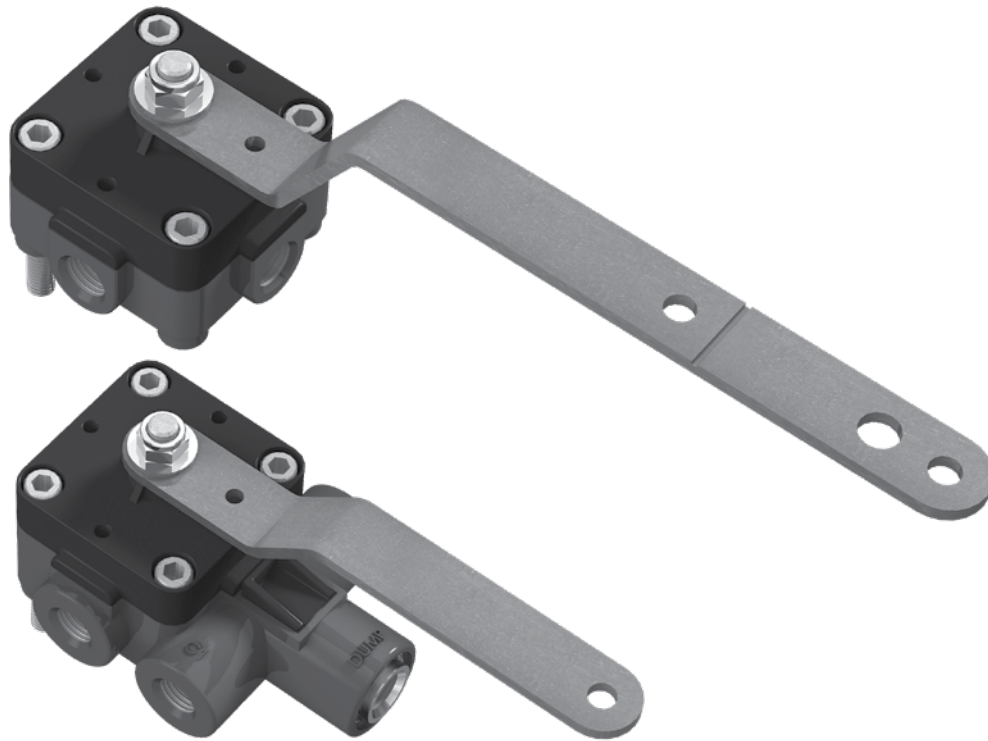


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INTRODUCTION

The height control valve maintains a constant ride height by automatically adding air to or exhausting air from the air suspension system. Hendrickson air suspensions only require one height control valve per trailer, regardless of the number of trailer axles.

IMPORTANT: Unless approved in writing by the Hendrickson Engineering department, DO NOT use more than one height control valve per trailer. The use of more than one height control valve will void the Hendrickson warranty.

Hendrickson's height control valve can be used in right-hand, left-hand, fore, aft and long- or short-control arm applications.

SERVICE NOTES

This document focuses on the installation of the Height Control Valve (HCV). Before conducting any installation work:

- Read and understand Hendrickson publication [L496 Wheel-end Maintenance Procedures](#) (available at www.Hendrickson-intl.com/TrailerLit), for additional safety information.
- Read and understand applicable work instructions and safety information provided by the trailer manufacturer.
- Always wear proper eye protection and other required personal protective equipment.
- Park the trailer on a flat, level, debris-free surface.
- Set the trailer parking brakes.
- Chock the wheels of the trailer axles to prevent the trailer from moving.

CONTACTING HENDRICKSON

For any questions, contact Hendrickson Trailer Technical Services in the United States and Canada at 866-RIDEAIR (743-3247) or email HTTS@Hendrickson-intl.com.

FITTING INSTALLATION

1. If necessary, apply thread sealant onto the fitting threads (on some fittings it is pre-applied).

IMPORTANT: Do not apply Teflon® tape to the fitting threads. The tape may contaminate the air system.

2. Install the supply and suspension fittings on the height control valve.

IMPORTANT: Do not overtighten fittings onto the height control valve. Overtightening may damage the valve body.

VALVE MOUNTING / AIR LINE ATTACHMENT

IMPORTANT: Before installing the height control valve, please review the drawings in the height control valve kit to determine the proper mounting and assembly.

When tightening the lock nuts on the height control valve mounting studs, DO NOT BACK OUT the studs from the height control valve body. Loosening the studs may cause the height control valve to leak.

1. Attach the air line(s) from the suspension air springs to the C1 and/or C2 port(s), shown in [Figure 1](#) and [Figure 2](#) on [page 3](#). Ports C1 and C2 on the forward and rear face of the height control valve (or on the rear top and bottom face of the integral dump valve) are the suspension ports.
2. When using only one suspension port, plug the unused port with the 1/4-inch NPT pipe plug provided in the height control valve kit.
3. Attach the air supply line from the pressure protection valve to the supply port on the top of the height control valve ([Figure 1](#) and [Figure 2](#) on [page 3](#)).
4. Install the exhaust fitting into the exhaust port.
5. Tighten all the lines.



NON-DELAY HEIGHT CONTROL VALVE INSTALLATION PROCEDURE

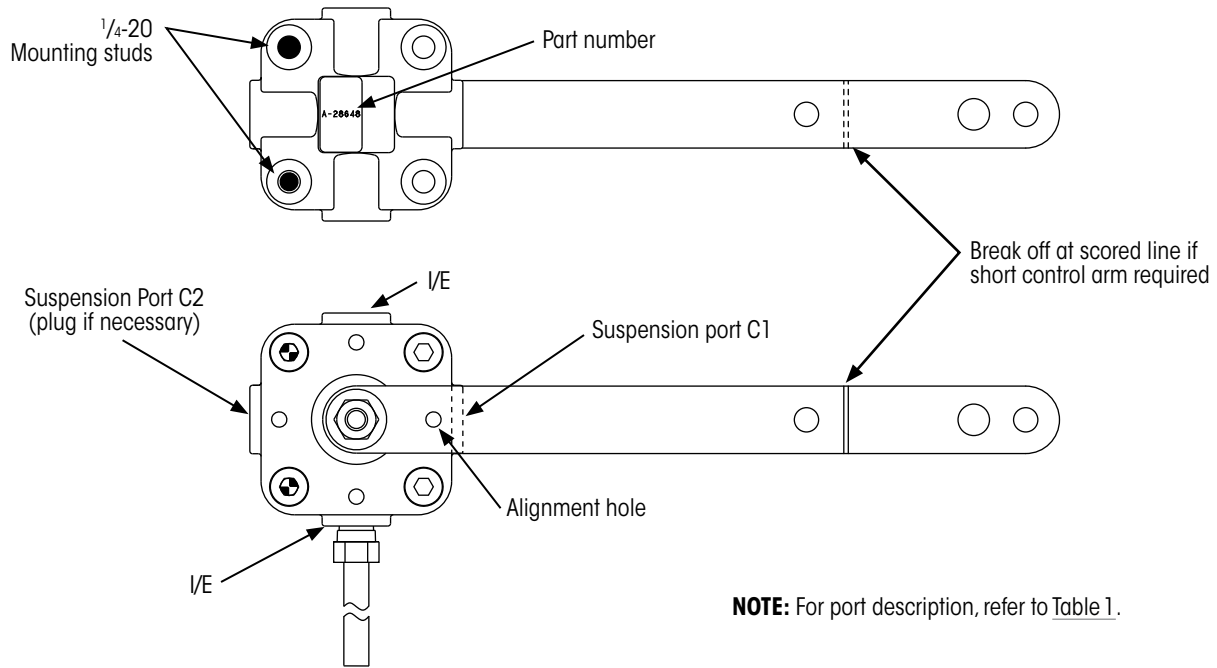
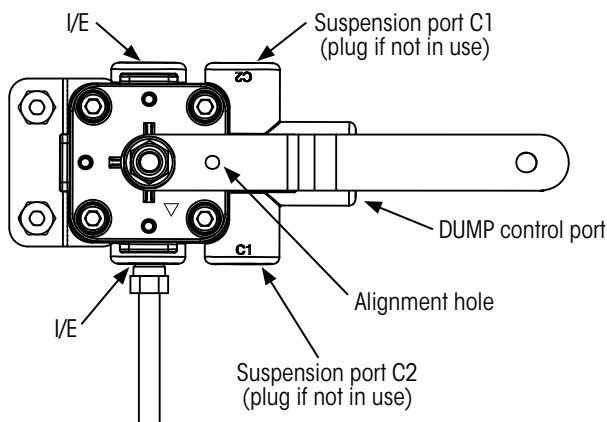
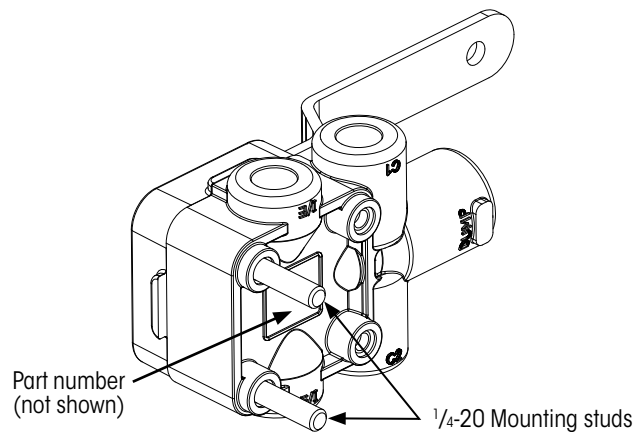


Figure 1: Hendrickson OEM non-delay height control valve



NOTE: For port description, refer to [Table 1](#).

Figure 2: Hendrickson OEM non-delay height control valve with integral dump

PORT		DESCRIPTION
I/E	In	Supply air line, at top port.
	Exhaust	Exhaust port, must be on bottom.
C1 & C2	Delivery air line to suspension. One or both can be used. Plug unused port.	
DUMP	Emergency supply line. (If with dump option)	

Table 1: Control valve port assignments

RIDE HEIGHT ADJUSTMENT

Determine recommended ride height by locating and reading the information on the identification tag.

NOTE: The recommended or designed ride height for all current Hendrickson trailer suspensions is listed on the suspension identification tag in the description line. Refer to Hendrickson literature number [L977 Trailer Suspension and Axle ID Guide](#) and [L388 Ride Height Settings](#) (available at www.Hendrickson-intl.com/TrailerLit).

If the designed ride height cannot be determined from the information on the identification tag, refer to [CONTACTING HENDRICKSON](#) on page 2.



ADJUSTING THE HEIGHT CONTROL VALVE

Before adjusting ride height, the trailer should be unloaded and placed on a flat, level work surface. The trailer should be parallel to the work surface and supported by the landing gear legs or coupled to a tractor.

1. **Secure** the vehicle. Chock the trailer wheels and release the trailer brakes.
2. **Pressurize** the air system. Connect the trailer to a tractor or a compressed air supply with approximately the same pressure as the tractor's air system. Check the valve connections for leaks.
3. When the air system is fully inflated, **measure** the suspension ride height. A suspension's ride height is defined as the distance from the suspension mounting surface (the bottom of the trailer or slider box) to the center of the axle. There are two easy ways to measure ride height:

A. Tape measure method -

- i. **Measure** the distance from the top of the axle to the mounting surface of the suspension.
- ii. **Add** half of the axle diameter to this measurement to determine your suspension's ride height. For example: on a suspension with a 5-inch axle, add 2½ inches (63.5 mm) to the measured distance, and on LDA™ Large-Diameter Axles (5.75-inch), add 2⅞ inches (73 mm) to the measured distance.

B. Ride Height Gauge method

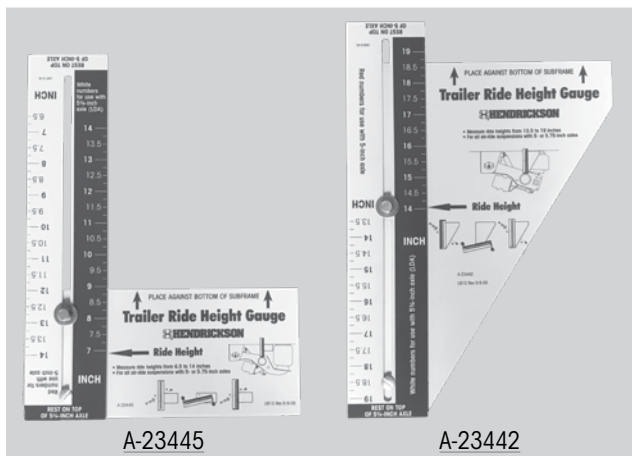


Figure 3: Hendrickson ride height gauges

- i. Use a Hendrickson Ride Height Gauge (Figure 3) to measure the distance between the axle and the mounting surface of the suspension. A ride height gauge works with both 5-inch and LDA (5.75-inch) axle diameters. Ensure the appropriate scale is being used when measuring.

To order a Ride Height Gauge, contact the Hendrickson customer service department at 866-RIDEAIR (866-743-3247) and specify part number A-23442 (Ride Height Gauge for conventional, top-mount suspensions) or A-23445 (Ride Height Gauge for low-ride suspensions).

4. **Compare** the measured ride height with the recommended or designed ride height (in other words, compare what you measured to what the ride height should be).

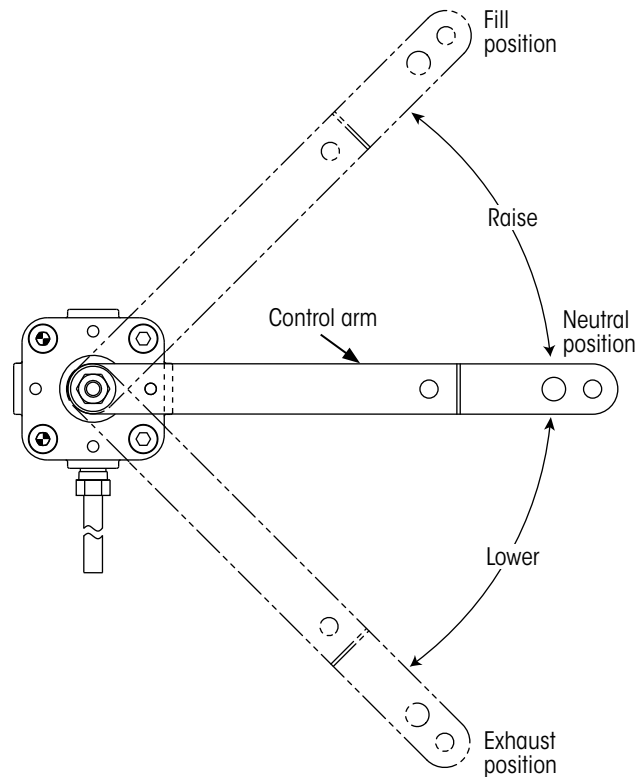


Figure 4: Ride height adjustment

IMPORTANT: A minimum of 100 psi air pressure must be available to open the brake protection valve and allow air flow to the height control valve in the next step.



5. If necessary, **rotate** the control arm on the height control valve up to raise or down to lower the suspension (Figure 4) until the distance between the suspension mounting surface and the axle center matches the recommended suspension ride height.

IMPORTANT: After setting the ride height, the control arm must remain in the neutral position.

6. **Insert** the wooden centering dowel into the control arm alignment hole and engage into the valve body (Figure 1 and Figure 2 on page 3).

LINK INSTALLATION FOR TOP-MOUNT MODELS

This section describes height control valve linkage installation for top-mount suspension models (AAT, AANT, AAZNT, HKAT or HKANT). Refer to Figure 6, Figure 7 or Figure 8 for installation details.

For instructions on installing the height control valve on a low-ride suspension model (AAL, AANL, AAZL, HKAL, or HKARL), refer to the LINK INSTALLATION FOR LOW-RIDE MODELS section.

1. **Fasten** half the link to the height control valve control arm and the other half to the lower mounting bracket with the provided shoulder bolts.

NOTICE: Ensure that the links rotate freely and do not bind. If the links do not rotate freely it can result in damage to the link, brackets and/or suspension.

NOTICE: Ensure the height control valve linkage is vertical when viewed from the rear of the suspension.

2. **Tighten** the 1/4-inch locking nut onto the 5/16-inch shoulder bolt until snug.
3. **Rotate** the halves until they are side by side and line up the nearest set of holes on both halves.
4. **Install** the #10-24 screws that are provided in the kit.
5. **Remove** the wooden centering dowel.
6. **Verify** the ride height setting.

MINOR VALVE ADJUSTMENT FOR TOP MOUNT MODELS

1. If a minor adjustment is necessary, **loosen** the locking nuts for the height control valve.
2. **Rotate** height control valve clockwise to increase ride height setting or counterclockwise to decrease ride height setting.
3. **Retighten** the locking nuts after completing the minor adjustment.
4. **Check** ride height to ensure it is properly set.



LINK INSTALLATION FOR LOW-RIDE MODELS

This section describes height control valve linkage installation for INTRAAX® AAL and AANL fixed primary, VANTRAAX® HKAL and HKARL slider and INTRAAX-SP AAZL slider suspension models.

LINK LENGTH CHART (5" AXLE ONLY ¹)			
Ride Height		Link Length	
Inch	mm	Inch	mm
6.5	165	3.5	89
7.5	191	3.5	89
9	229	3.5	89
10	254	3.5	89
11	279	6.25	159
12	305	6.25	159
14	356	5.5	140
15	381	6.25	159
16	406	9.25	235
17	432	10	254

¹ Only applicable to suspension models with a 5" diameter axle.

Table 2: Determining link length, 5" axle

1. **Assemble** the height control valve link to the length (Table 2). Lengths in the chart are from center to center of the mounting holes (Figure 5).

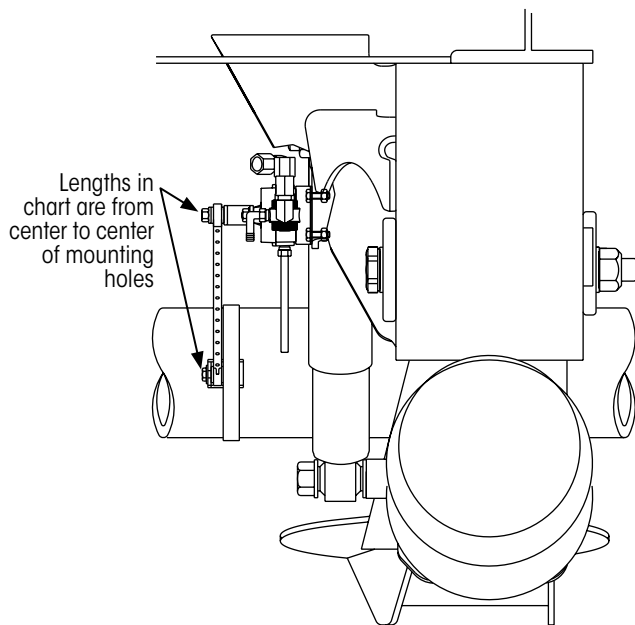


Figure 5: Measurement points for low-ride link lengths

2. **Install** the height control valve to the suspension as shown in Figure 9 and the drawings provided with the kit.

3. **Set** the suspension at the proper ride height by moving the control arm up to fill the air springs or down to exhaust the air springs.
4. With the suspension held at ride height, **insert** the wooden centering dowel into the alignment hole to prevent the control arm from moving.
5. **Install** the link on the height control valve control arm with the fasteners provided in the kit.
6. **Install** the bracket and band clamp loosely on the axle.
7. **Position** the bracket on the axle, so the height control valve link is vertical.
8. **Rotate** the bracket and band clamp around the axle until the bracket mounting hole and the link mounting hole line up.
9. **Install** the link fastener and tighten the lock nut. Tighten the band clamp to 45-60 ft. lbs. (61-81 Nm) of torque for 5" axle or 26-34 ft. lbs. (35-46 Nm) of torque for 5.75" axle.

IMPORTANT: When tightening the band clamp, **AVOID CHANGING** the position of the bracket.

HCV ASSEMBLY EXPLODED VIEWS

The following sample HCV assembly exploded views are examples only. For more up-to-date information and details, please refer to installation drawings¹ provided with HCV kits.

¹ Installation drawings are provided with each HCV kit and supersede information in this document. They are also available online at www.Hendrickson-intl.com/TrailerLit. If unavailable, refer to **CONTACTING HENDRICKSON** on page 2.



NON-DELAY HEIGHT CONTROL VALVE INSTALLATION PROCEDURE

IMPORTANT: For all HT™ Series suspensions, except the HT250US, mount the non-delay height control valve directly to the suspension frame bracket.

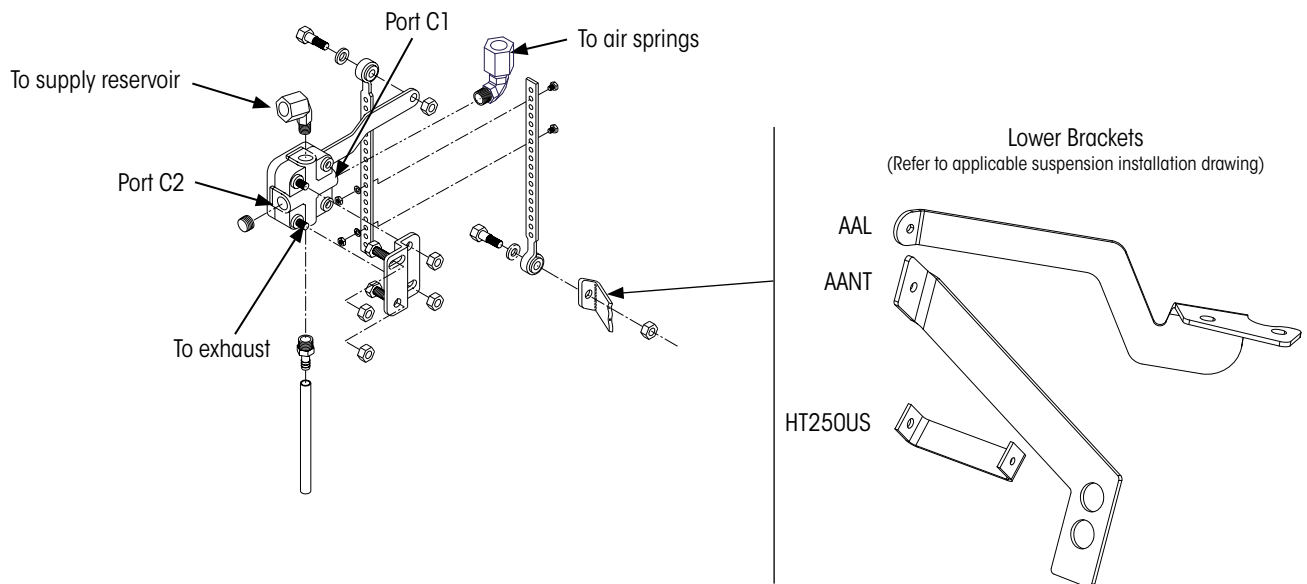
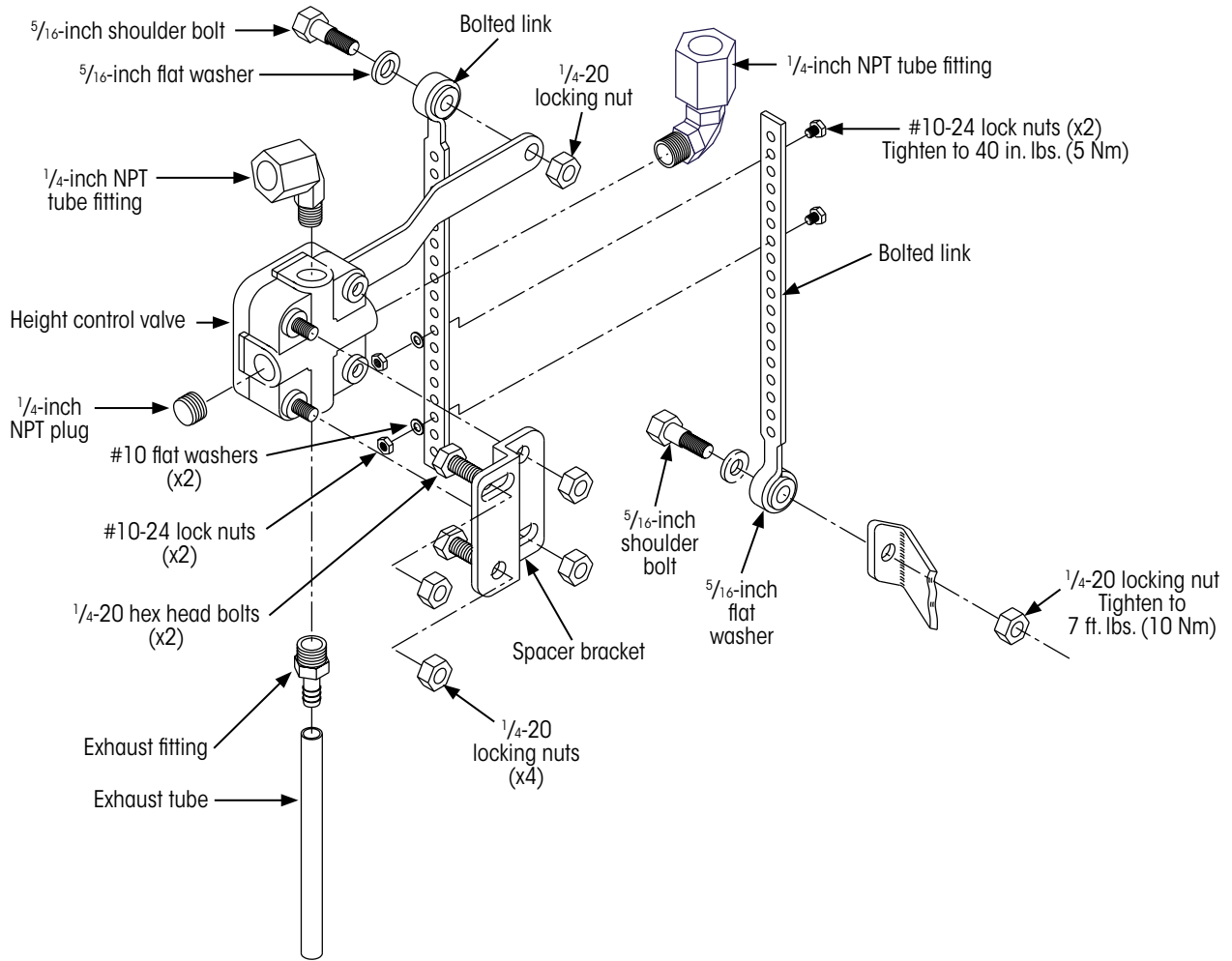


Figure 6: HCV assembly for INTRAAX® AAL, AANT and HT250US suspensions

NON-DELAY HEIGHT CONTROL VALVE INSTALLATION PROCEDURE

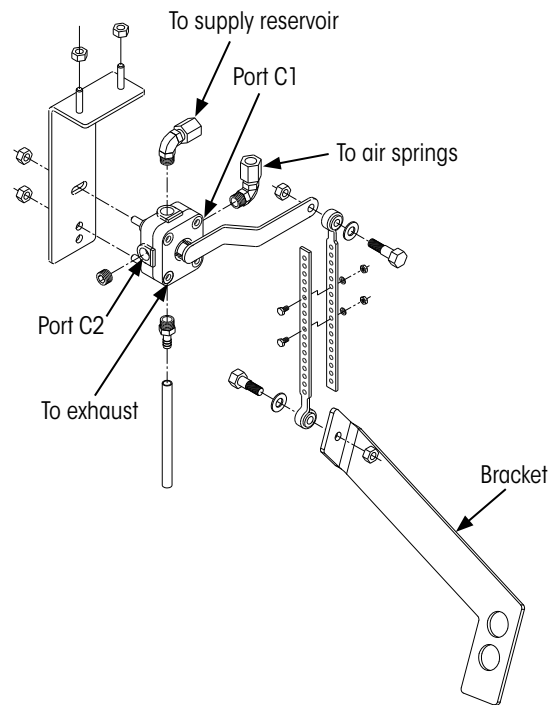
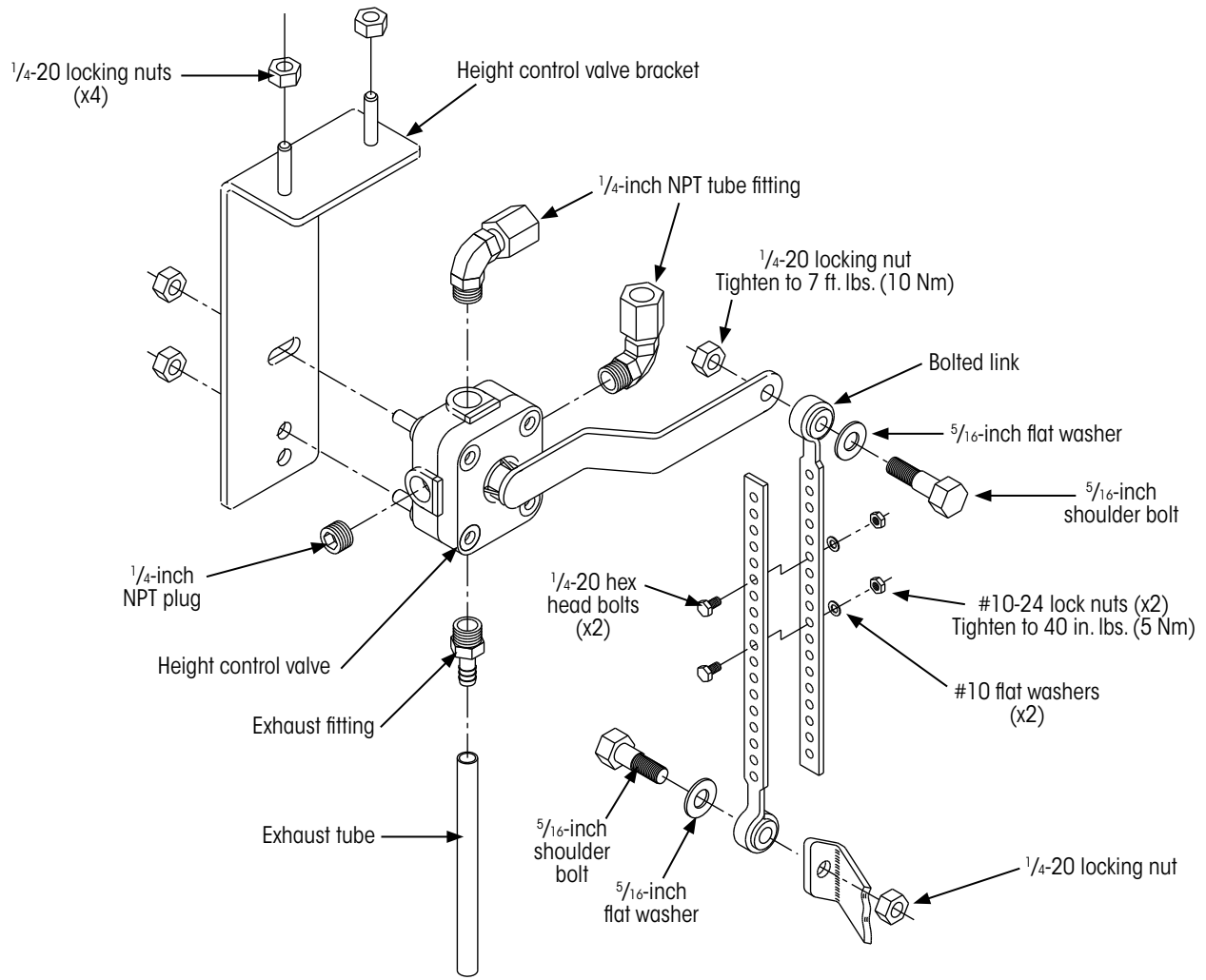


Figure 7: HCV assembly for VANTRAAX® HKANT suspensions



NON-DELAY HEIGHT CONTROL VALVE INSTALLATION PROCEDURE

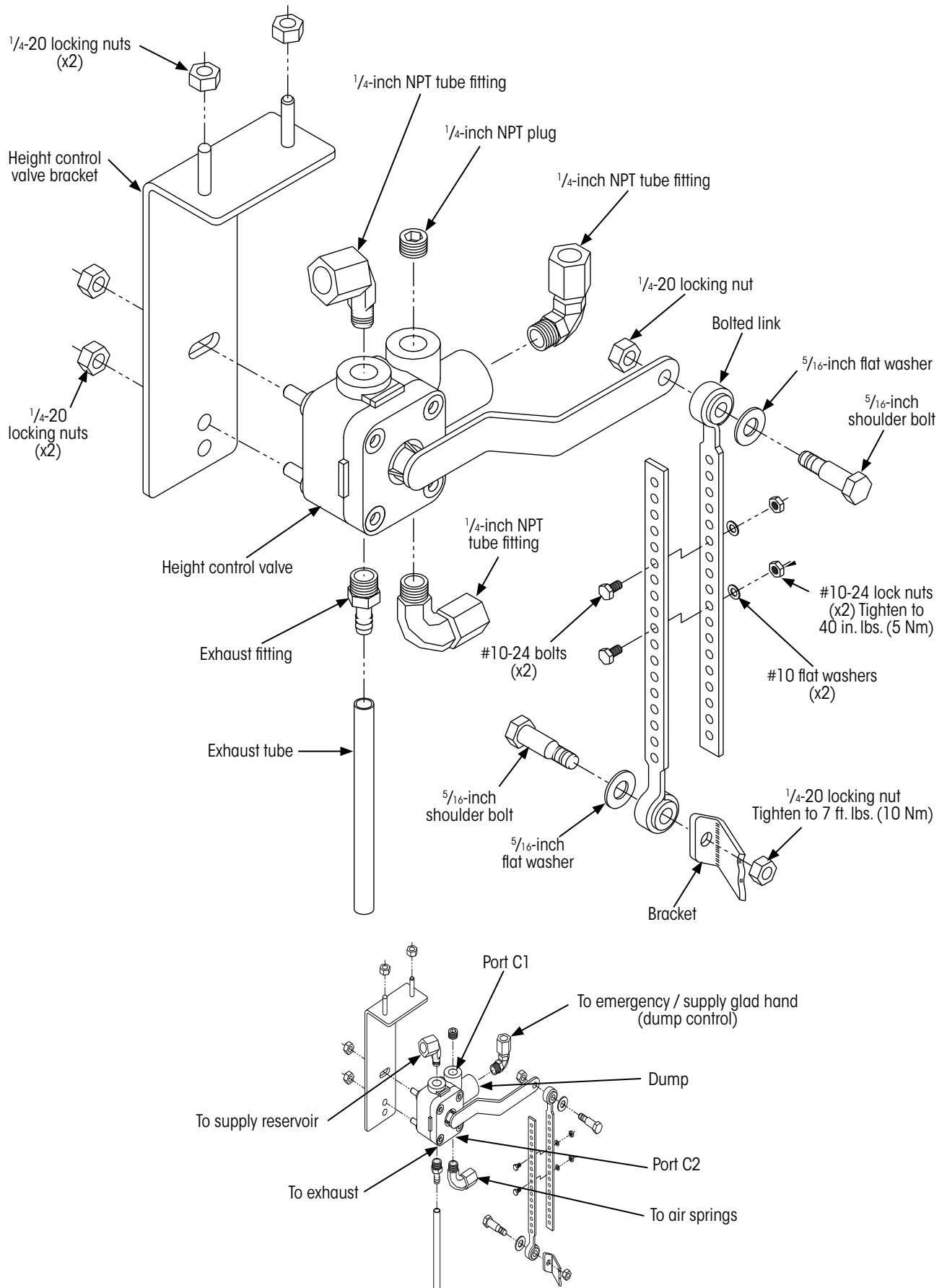


Figure 8: Integral dump HCV assembly for VANTRAA[®] HKANT suspensions

NON-DELAY HEIGHT CONTROL VALVE INSTALLATION PROCEDURE

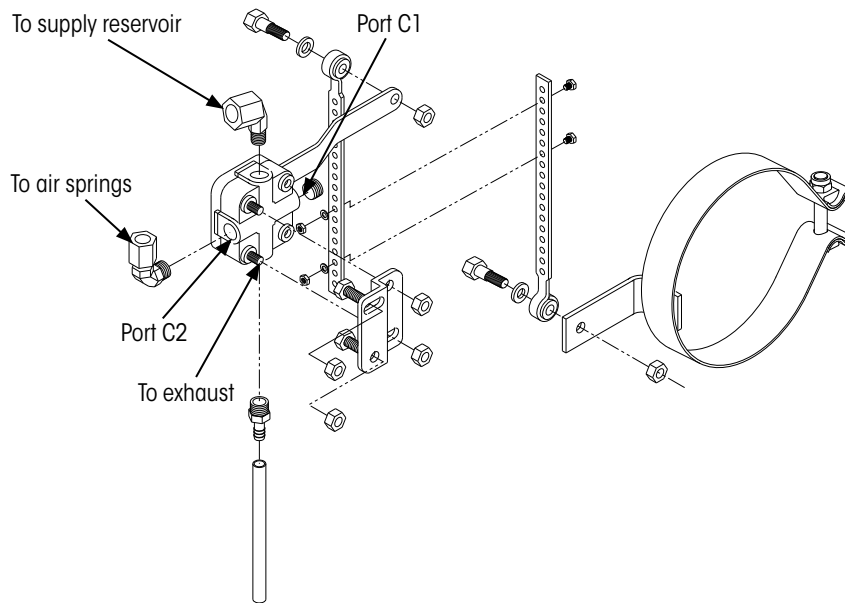
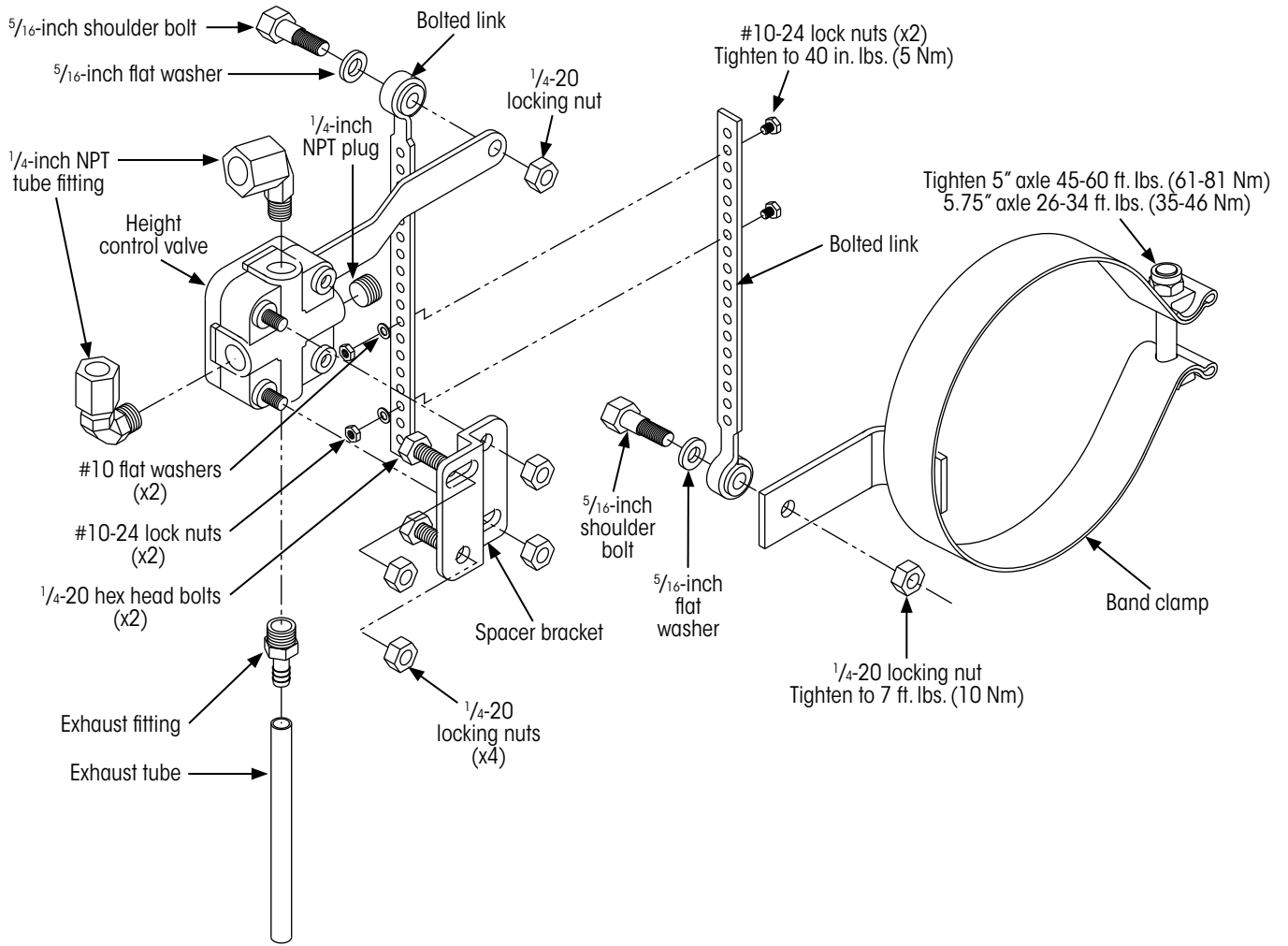


Figure 9: HCV assembly for INTRAAX®-SP AAZL suspensions



Call Hendrickson at **866.RIDEAIR (743.3247)** for additional information.



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