



Air Lift Performance 3H™ Height Upgrade Kit 27705

P A T E N T E D



AIR LIFT
PERFORMANCE®

INSTALLATION GUIDE

For maximum effectiveness and safety, please read these instructions completely before proceeding with installation.

Failure to read these instructions can result in an incorrect installation.

Download the App for the Best #lifeonair

The Air Lift Performance 3 mobile app allows for full integration of your new 3H/3P control system on compatible mobile devices. Simply download the FREE app to not only take full control of your system, but to always have the latest system firmware with updates directly from the app.

See 3H/3P User Guide for instructions on pairing your device.





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Component List

Refer to Installation diagram on pages 8-9 for item illustrations.

HEIGHT CONTENT

Item	Part #	Description	Qty	Item	Part #	Description	Qty
A	34977	HPACK- Height Sensor Linkage	4	F	26953-021	Harn-20FT FR Height Sensor*	1
B	26894	Height Sensor Assembly	4	G	11998	Height Sensor Spacer	4
C	26953-012	Harn-12FT RL Height Sensor*	1	H	10466	Zip Tie 8" Black	20
D	26953-013	Harn-12FT RR Height Sensor*	1	I	17497	Screw 10-16 x 1 3/4" Self Tapping Zinc ...	8
E	26953-020	Harn-20FT FL Height Sensor*	1				

* FL = Front left corner RL = Rear left corner
 FR = Front right corner RR = Rear right corner

 **WARNING**

IF THE PRESSURE-BASED SYSTEM IS ALREADY INSTALLED BEFORE HEIGHT SENSOR INSTALLATION, MAKE SURE TO TURN OFF RISE ON START TO AVOID UNINTENDED AIRING UP. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN EQUIPMENT DAMAGE, BODILY HARM OR DEATH (SEE USER GUIDE).

 **WARNING**

FLOOR JACKS CAN BE DANGEROUS. WHENEVER USING A FLOOR JACK, MAKE SURE IT IS RATED FOR THE LOAD IT IS LIFTING. CHECK THE VEHICLE OWNER'S MANUAL FOR INFORMATION ABOUT WHERE TO PLACE THE JACK. BEFORE RAISING THE VEHICLE, PLACE WHEEL CHOCKS IN FRONT AND BEHIND THE WHEELS TO PREVENT THE VEHICLE FROM ROLLING. ALWAYS USE JACK STANDS TO SUPPORT THE VEHICLE. NEVER GET UNDER OR PLACE ANY BODY PARTS UNDER A VEHICLE THAT IS SOLELY SUPPORTED BY THE JACK.

 **CAUTION**

REMOVE ALL FUSES WHEN JUMP-STARTING OR WELDING ON THE VEHICLE. FAILURE TO DO SO COULD DAMAGE THE MANIFOLD.

Introduction

The purpose of this publication is to assist with the installation, maintenance and troubleshooting of Air Lift Performance 3H/3P Height Upgrade Kit.

Read and understand the entire installation guide before beginning installation or performing any maintenance, service or repair. The information includes step-by-step installation information, installation templates and a troubleshooting guide.

Air Lift Company reserves the right to make changes and improvements to its Air Lift Performance products and publications at any time.

NOTATION EXPLANATION

Hazard notations appear in various locations in this publication. Information which is highlighted by one of these notations must be observed to help minimize risk of personal injury or possible improper installation which may render the vehicle unsafe. Notes are used to help emphasize areas of procedural importance and provide helpful suggestions. The following definitions explain the use of these notations as they appear throughout this guide.

 **DANGER**

INDICATES IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

 **WARNING**

INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

 **CAUTION**

INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN DAMAGE TO THE MACHINE OR MINOR PERSONAL INJURY.

NOTE

Indicates a procedure, practice or hint which is important to highlight.

Installing Air Lift Performance 3H Height Upgrade Kit

INSTALL HARNESS

The harness can be routed inside or underneath the vehicle. In either case, ensure all parts of the harness are protected from abrasive edges and heat sources.

CAUTION

REMOVE ALL FUSES WHEN JUMP-STARTING OR WELDING ON THE VEHICLE. FAILURE TO DO SO COULD DAMAGE THE MANIFOLD.

1. Height sensor harnesses

- Route and attach each height sensor harness to the height sensor locations based on the heat shrink labels for the appropriate corners of the vehicle (FL, FR, RL, RR)*.
- Connect the main harness height sensor drops to the appropriate height sensor harness feeding the corresponding corners of the vehicle (match FL, FR, RL, RR)*.

NOTE

Keep proper drip loops and use proper bend radius for wire bundles (fig. 1).

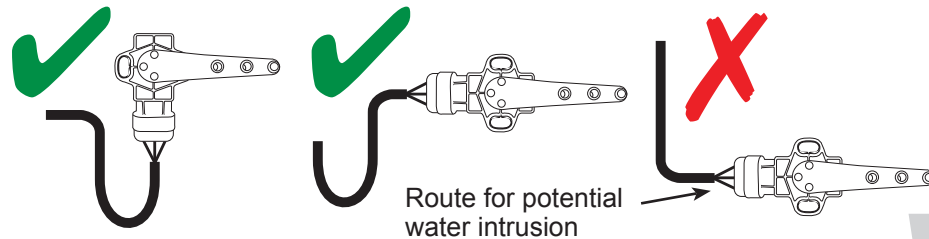


fig. 1

* FL = Front left corner
FR = Front right corner
RL = Rear left corner
RR = Rear right corner

CAUTION

IF THE PRESSURE-BASED SYSTEM IS ALREADY INSTALLED BEFORE HEIGHT SENSOR INSTALLATION, MAKE SURE TO TURN OFF RISE ON START TO AVOID UNINTENDED AIRING UP. (SEE USER GUIDE.)

NOTE

If extending the height sensors is necessary because of the size of the vehicle, order one of two kits: Part number 27700 (2)-4' extension harnesses, 27702 (2)-8' extension harnesses.

HEIGHT SENSORS

Installation of height sensors is a trial-and-error process and requires patience. The goal is to use as much of the sensor range as possible which will maximize height adjustment accuracy.

Determining Height Sensor Mounting Point

1. Solid mounting point on the body or frame that will not deflect. Anything that moves is not a good mounting point.
2. The sensor can be mounted in any direction and will still work as long as the sensor arm base's extruded point is pointing toward the connector when the sensor arm is at its mid-position. The height sensor assembly is supplied in position A. Remove the arm to reposition it to B or C but keep the extruded point in the direction of the connector. The orientation of the connector must be either facing down or parallel to the ground to avoid water accumulating on the connector and making its way into the sensor. Also mount the sensor where the arm will be mounted opposite or 90 degrees from the connector wiring if possible. If not possible, ensure the wiring harness is secured away from arm travel so it will not get caught up when the arm cycles (fig. 2).

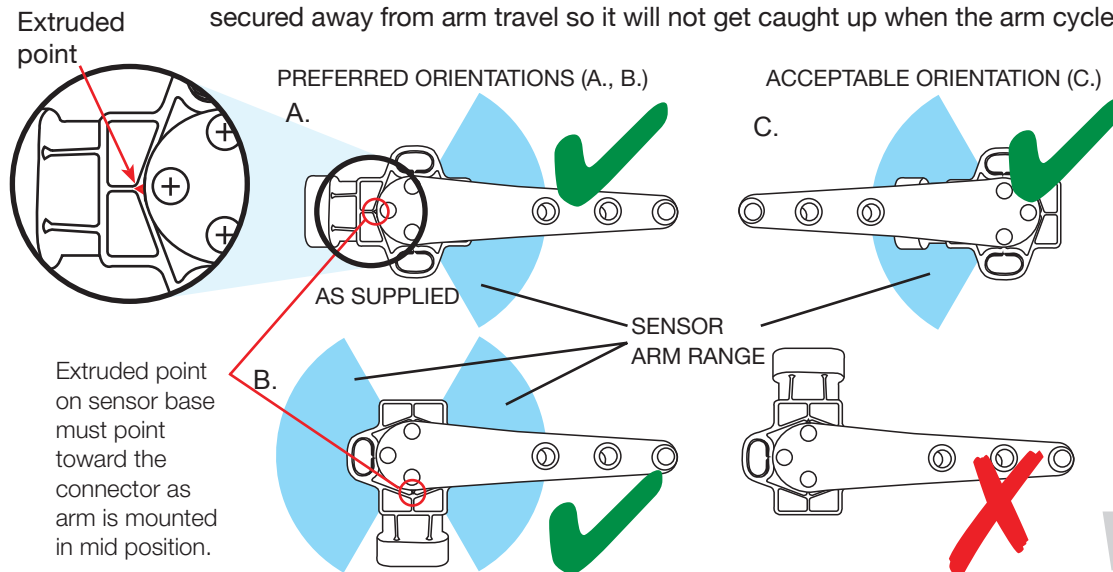


fig. 2

NOTE

Do NOT position sensor with connector up, or with point on sensor base pointed anywhere but at the sensor connector when arm is in its mid position.

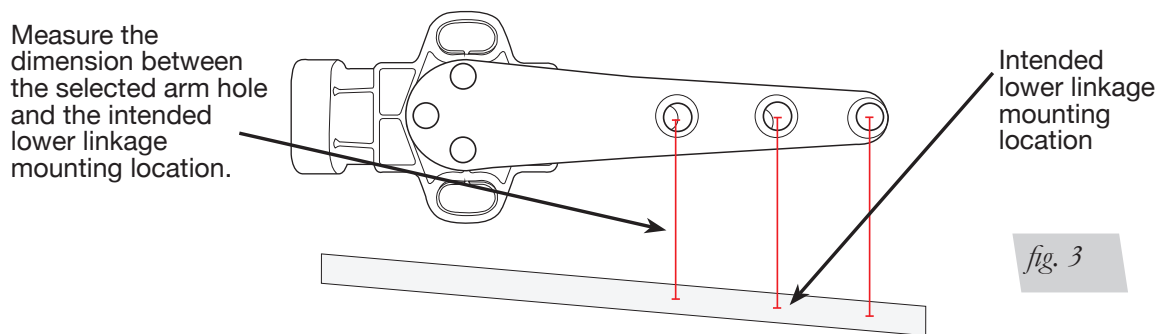
3. Find a point where the sensor will be directly above the lower linkage mounting surface. It may be necessary in some applications to fabricate a bracket to locate sensor in appropriate position.
4. Make sure that the sensor and sensor arm clear the vehicles suspension, wheels, and any other moving parts. This includes steering the wheels all the way to the lock position left and right to ensure proper clearance. Provide enough clearance to compensate for heavy load/movement that can't be seen from manual/physical articulations.
5. Keep the sensor and wires away from heat sources and moving parts that will create wear and may damage these components.
6. Understand whether the suspension or wheel assembly is the limiting factor when the vehicle is aired out. This will ensure proper accommodation of sensor arm travel.
7. If using self-tapping screws into the frame, make sure there are no wires or brake/air/fuel lines on the other side before installing screw.

WARNING

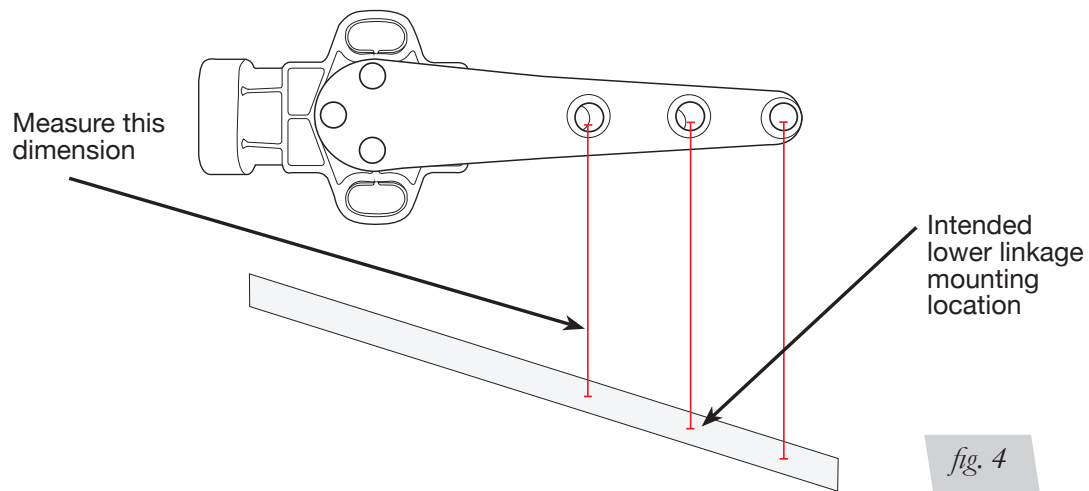
FLOOR JACKS CAN BE DANGEROUS. WHENEVER USING A FLOOR JACK, MAKE SURE IT IS RATED FOR THE LOAD IT IS LIFTING. CHECK THE VEHICLE OWNER'S MANUAL FOR INFORMATION ABOUT WHERE TO PLACE THE JACK. BEFORE RAISING THE VEHICLE, PLACE WHEEL CHOCKS IN FRONT AND BEHIND THE WHEELS TO PREVENT THE VEHICLE FROM ROLLING. ALWAYS USE JACK STANDS TO SUPPORT THE VEHICLE. NEVER GET UNDER OR PLACE ANY BODY PARTS UNDER A VEHICLE THAT IS SOLELY SUPPORTED BY THE JACK.

SELECTING SENSOR LOCATION

1. Mark on the vehicle the intended sensor mount location to maintain consistency in measuring methods in the next several steps. After finding a potential sensor location, you will need to measure the suspension travel, which will determine the proper arm hole. Exhaust the air springs, disconnect the air lines and jack up the suspension to its lower limit position. Take the measurement between the selected sensor arm hole with the arm at its midpoint and directly below the intended lower linkage location (fig. 3).



2. Reinstall air lines and cycle the suspension to get to the upper limit position again, measuring between the sensor arm's middle position and directly below the sensor arm hole mounting to the lower linkage ball joint (fig. 4). The difference between these two values will be the full suspension travel range.



SELECTING SENSOR ARM HOLE

Max angle of travel for this sensor is 120 degrees, which can be correlated to the necessary suspension travel as seen in the table below (table 1). Any significant over-extension or over-compression may damage and possibly destroy the sensor or sensor linkage.

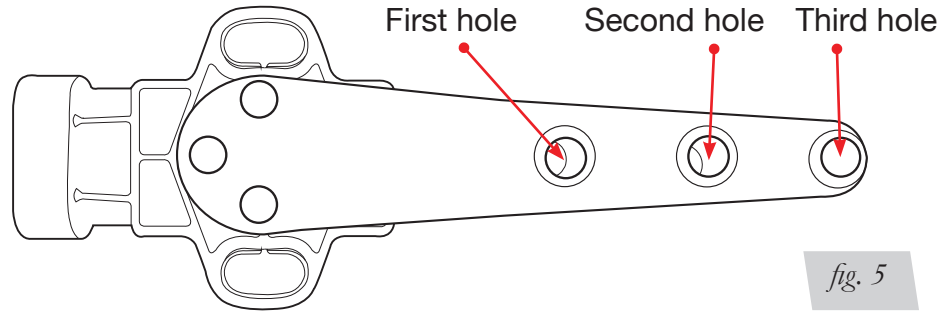
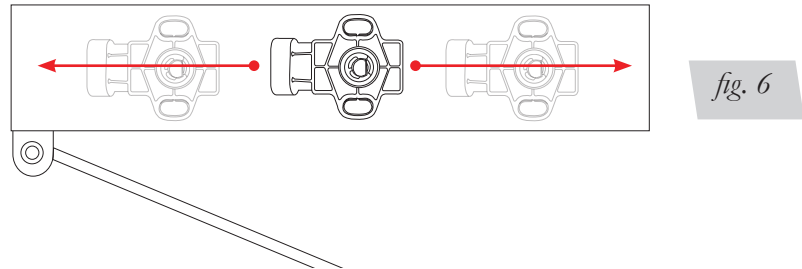


fig. 5

Hole	Maximum Suspension Range	Minimum Suspension Range
First	2 3/4"	1 13/16"
Second	4 3/16"	2 7/8"
Third	5 5/8"	4 3/16"

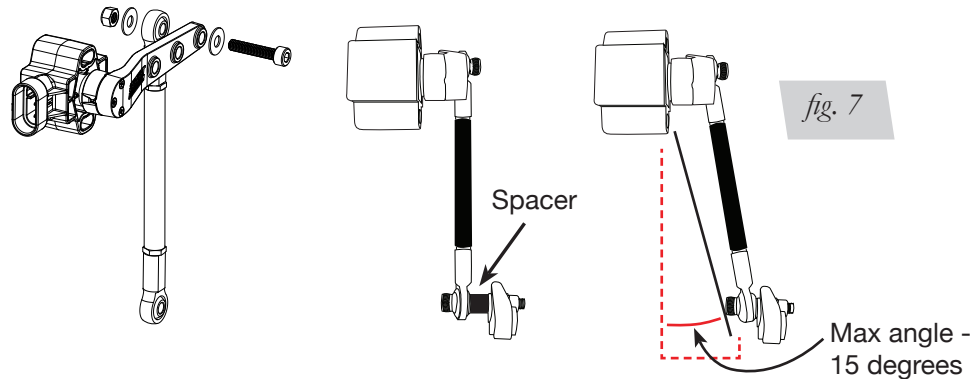
Table 1

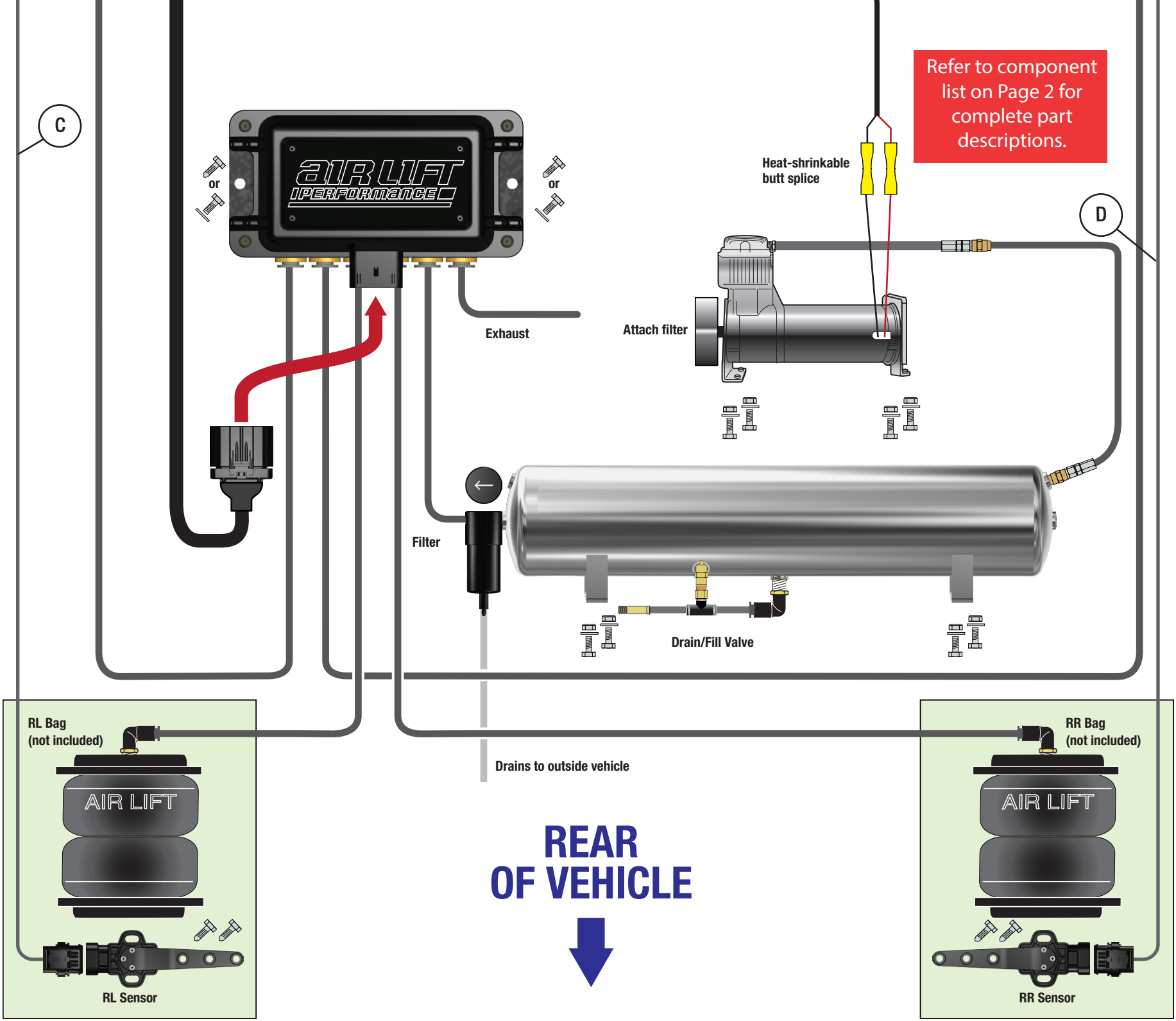
The sensor should be mounted so the measured travel falls near one of the maximum suspension range dimensions. Move the sensor closer or farther from the suspension pivot point to achieve this measurement. (fig. 6).

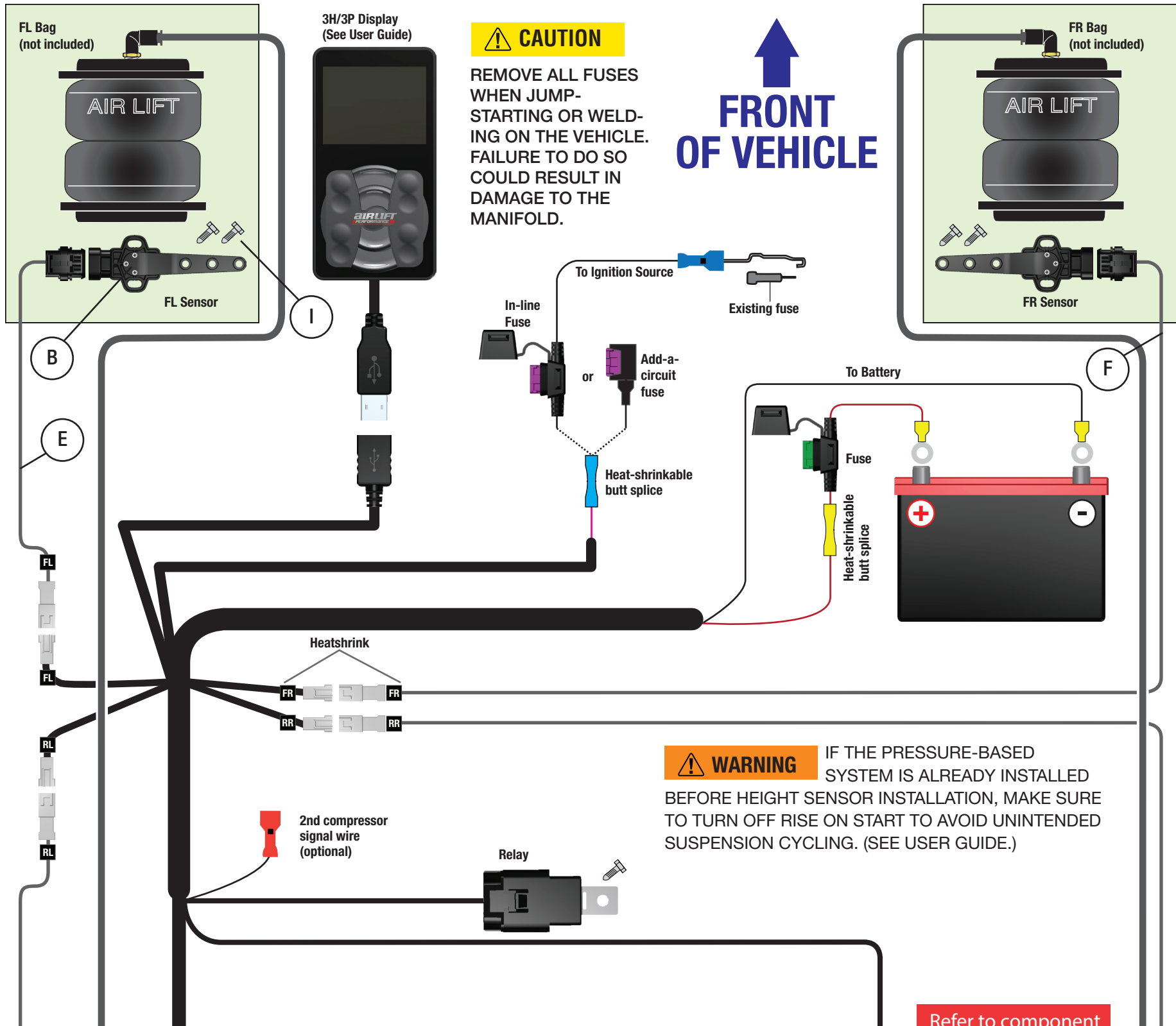


MODIFYING LINKAGE ANGLE

After selecting the location of the sensor and the arm hole to be used, determine the lower mounting point. Ensure the angle between the mounting point and the sensor arm is less than 15 degrees. Any more angle than that, will put unwanted stress on the components. Use the supplied spacer on the lower mounting point to get the angle closer to vertical with respect to the sensor arm (fig. 7).







CAUTION

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FRONT OF VEHICLE

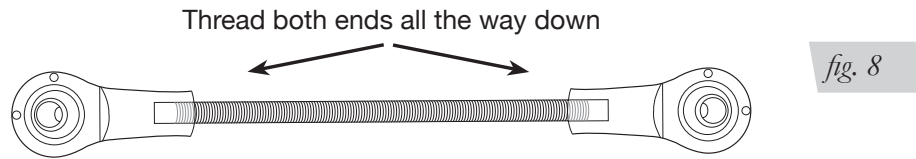
WARNING

IF THE PRESSURE-BASED SYSTEM IS ALREADY INSTALLED BEFORE HEIGHT SENSOR INSTALLATION, MAKE SURE TO TURN OFF RISE ON START TO AVOID UNINTENDED SUSPENSION CYCLING. (SEE USER GUIDE.)

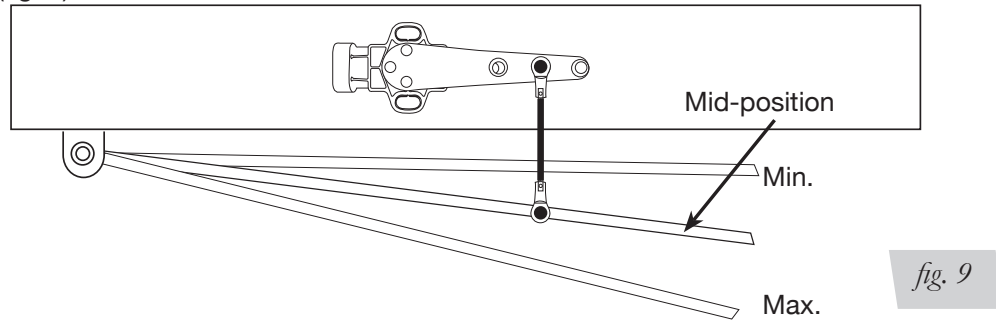
Refer to component

LINKAGE ASSEMBLY/MODIFICATION

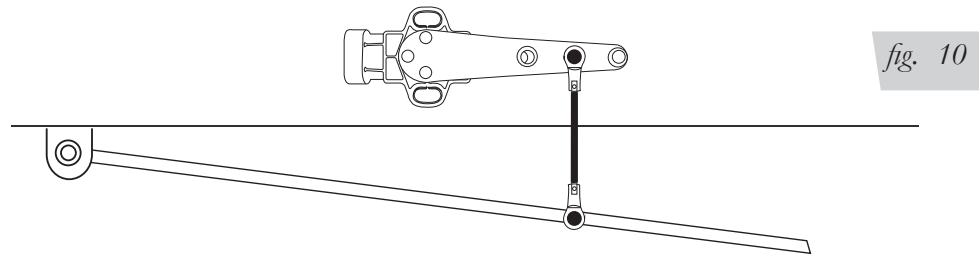
1. Locate the linkage and ensure the rod is threaded all the way on (fig. 8).



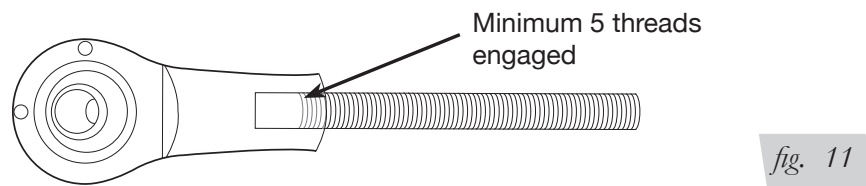
2. Next put the suspension in the mid-position with respect to full suspension travel (fig. 9).



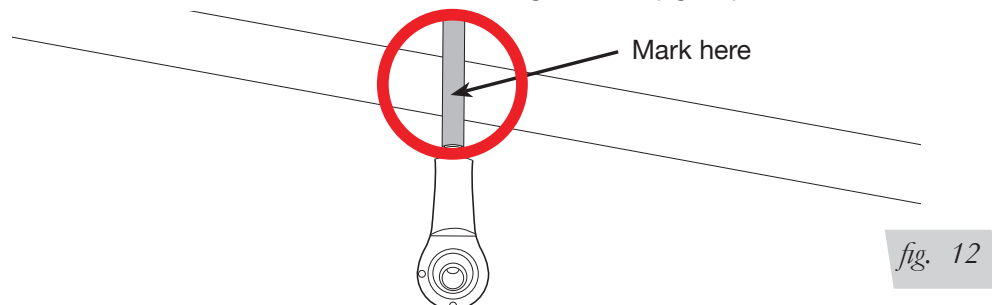
3. Fasten by finger tightening the linkage to the sensor arm and ensure the sensor arm is at mid-position with respect to the sensor (fig. 10).



4. Loosen if needed in order to extend to reach the lower mounting point. If loosening the linkage to extend it is required, make sure to have at least 5 threads of engagement on both ends (fig. 11).



5. If shortening the rod linkage is necessary, mark the rod cover where the mounting location intersects with the intended mounting location (fig. 12).



6. Remove the rod linkage from the sensor arm and measure 1/2" back from the mark. This will show where to cut the rod (fig. 13).

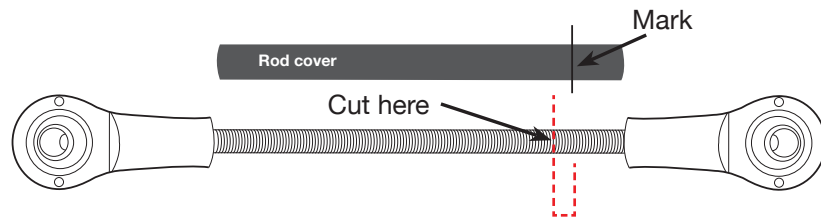


fig. 13

7. Before cutting the rod, thread the jam nut back on the rod. Use the nut to deburr the rod end. (fig. 14).

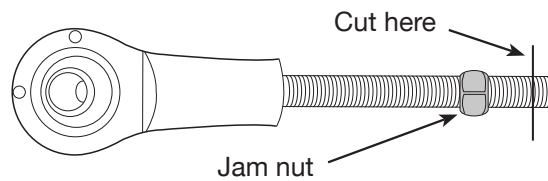


fig. 14

8. Cut the rod cover 5/8" shorter than the rod length with the rod assembled on one end after cutting (fig. 15).

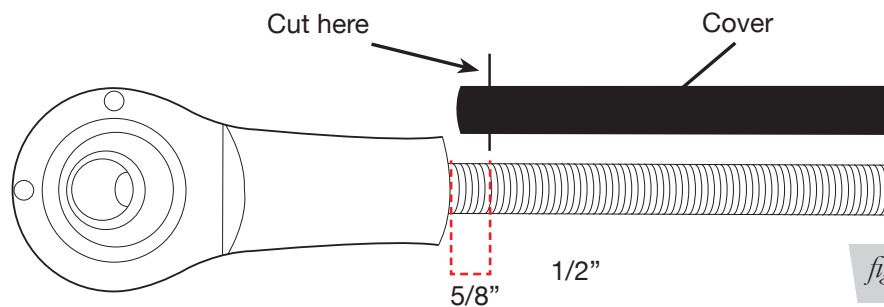


fig. 15

9. Assemble linkage back together, and fasten it to the sensor arm and lower mounting location with supplied hardware (fig. 16). Temporarily secure the sensor in its intended location including using the height sensor spacer that is provided.

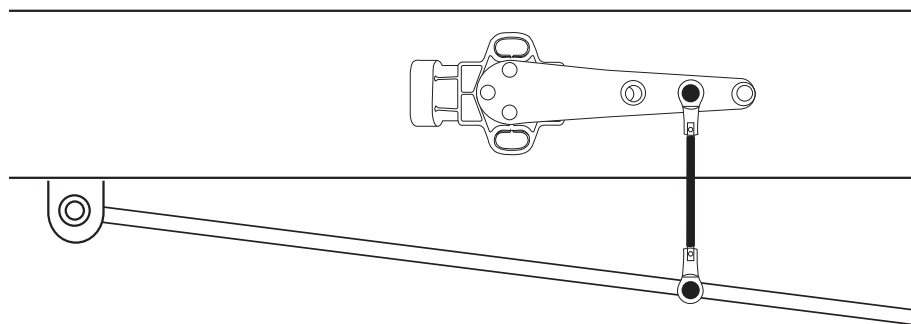


fig. 16

DISPLAY SETTINGS

Once the height sensor is installed, go into the main menu screen on the ALP3 display, go to operations and then select Pressure/Height Mode and set to Height. Use the sensor tool as described in the next steps.

WARNING

ENSURE RISE ON START IS SHUT OFF PRIOR TO THIS STEP.

VERIFYING SUSPENSION RANGE

Use the paper height sensor tool on page 24 or electronic sensor tool in the display to make sure the range is sufficient to provide accurate measurements (fig. 17). (See User’s Guide).

Next, air the vehicle up and down to see if there is any issue with the travel of the sensor using the height sensor install tool.

After confirming that the range is correct and adequate, permanently secure the position of the sensor using the supplied hardware.

Complete this for all four sensors. Once the system is completely installed and system calibration is done, if any of the height sensors are out of range, there will be a warning message and the affected corner’s visual indicators will not move with pressure adjustments. See User’s Guide for more information.

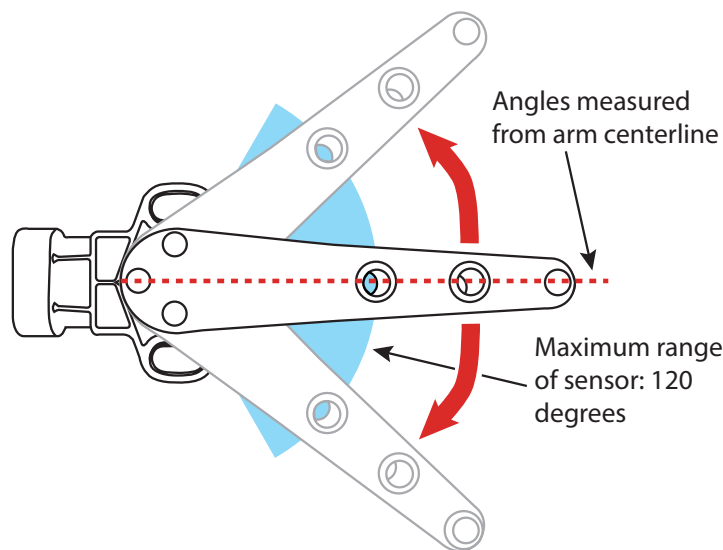


fig. 17

MODIFYING SENSOR ARM

Follow the arcs around the appropriate holes to make the arms shorter. Keep the smooth, rounded contour of the end of the arm (fig. 18).

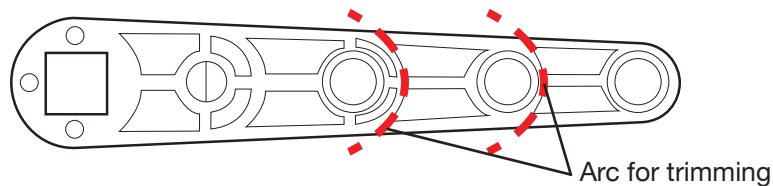
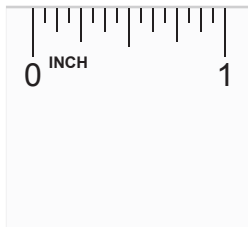
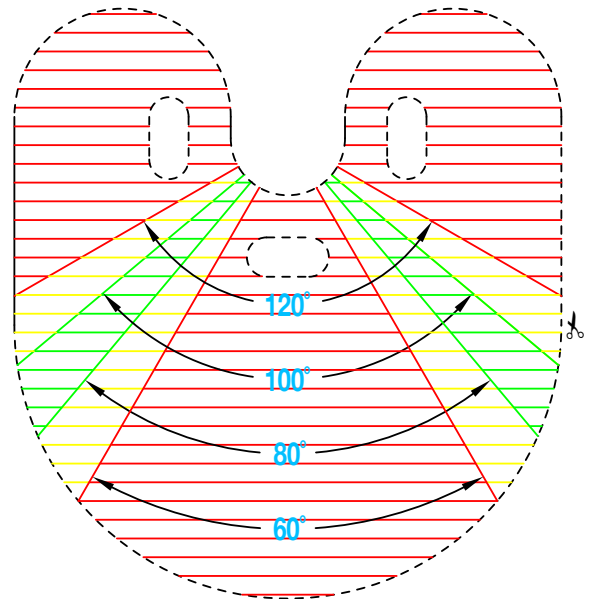
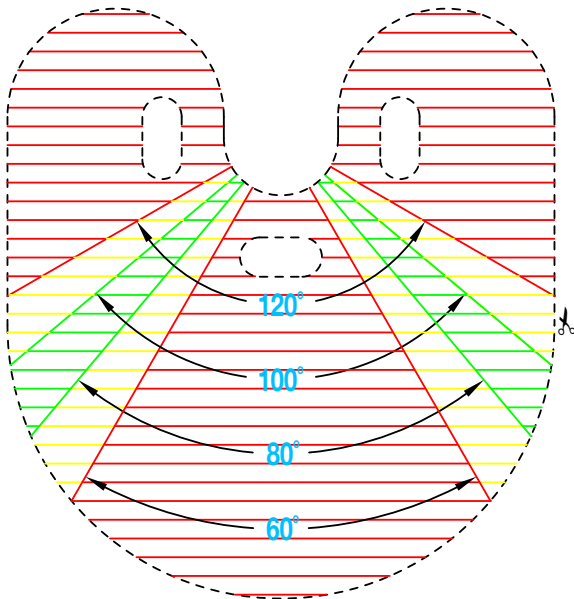
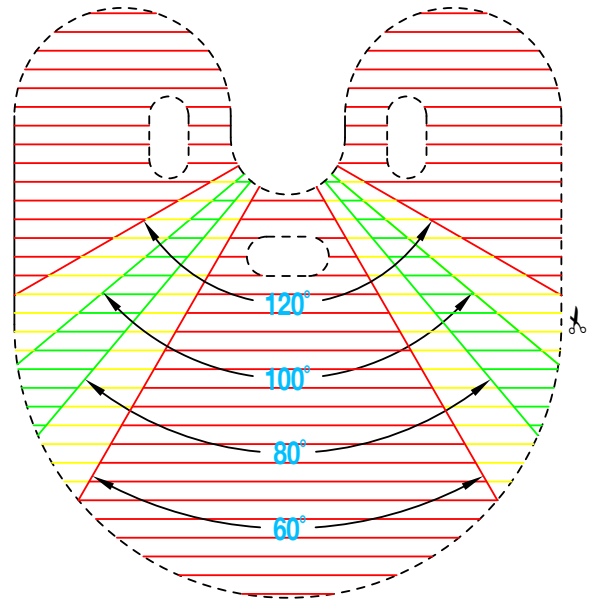
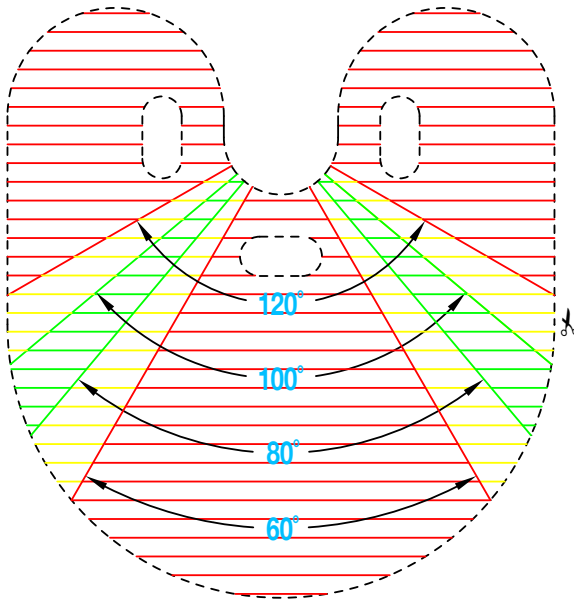


fig. 18

CALIBRATION

After installation of all the height sensors, run through the calibration setup again and this time select height sensors install when prompted. Details of this step can be found in the 3H User Guide.

Height Sensor Install Tool



Cut out the height sensor tools and position each one as shown at right depending on the height sensor orientation. It would be a good idea to make copies of this page in case the tools are damaged during installation. Make sure to copy at 100% so the tools are the correct size. The drawing to the right is not to scale.

