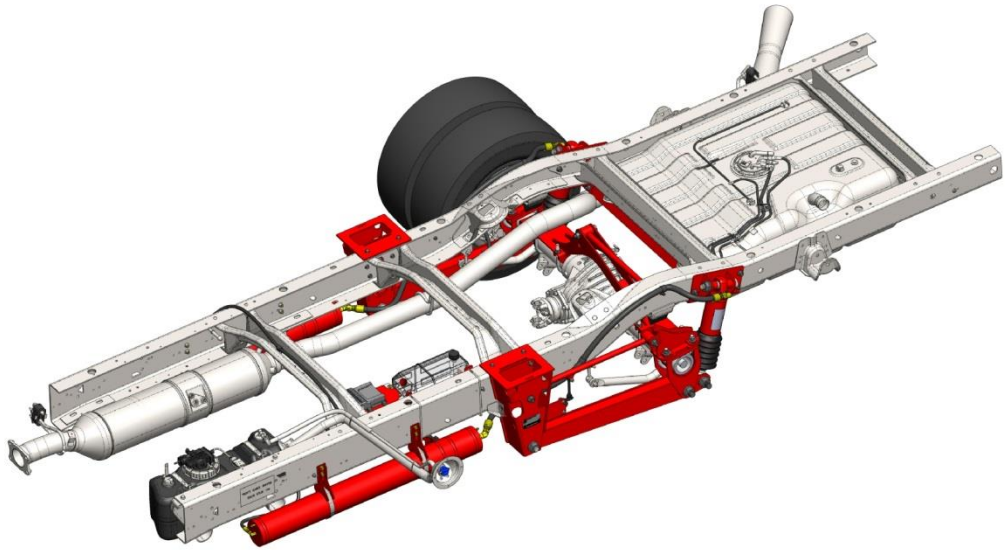


DS96GM

DS96GM

Rear Axle Suspension System
for Chevrolet/GMC G3500/4500
Cutaway Chassis



Installation / Maintenance Manual

D11002 Rev T 7/2019

Contents

CONTENTS	2
INTRODUCTION	3
SUSPENSION APPLICATION	3
SUSPENSION RATING	3
SERIAL NUMBER TAG INFORMATION	3
VEHICLE TOWING AND JACKING INFORMATION	4
ABBREVIATIONS	4
SPECIAL TOOLS	4
HYDRAULIC FITTING ASSEMBLY	5
SAE O-Ring Adjustable Fittings	5
SAE O-Ring Non-Adjustable Fitting	5
JIC 37° Fitting	5
PRE-INSTALLATION.....	5
FRAME PREPARATION.....	5
INSTALLATION	8
FRONT HANGERS	8
AXLE CONNECTION	9
CONTROL ARMS	10
TRACK ROD MOUNTING	11
UPPER STRUT MOUNTS.....	13
STRUTS	14
SECONDARY VOLUMES (DS96GM-AR, -AM, -MR)	15
SECONDARY VOLUMES (DS96GM-ARC, -AMC)	17
POWER MODULE [DS96GM-AR, -ARC, -MR]	19
POWER MODULE [DS96GM-AM, -AMC]	21
HOSE ATTACHMENT AND ROUTING [DS96GM-AR, -ARC, -MR]	23
HOSE ATTACHMENT AND ROUTING [DS96GM-AM, -AMC].....	25
CHASSIS ASSEMBLY	27
<i>Spacers for fuel lines.....</i>	<i>27</i>
<i>Parking brake cable routing</i>	<i>27</i>
<i>Final Torque</i>	<i>28</i>
HEIGHT SENSORS.....	29
STEERING SENSORS	30
WIRING.....	32
<i>Optional Door Electrical Harness Installation:</i>	<i>35</i>
SYSTEM PREPARATION.....	36
<i>Initial System Fill.....</i>	<i>36</i>
<i>Bleeding the System</i>	<i>36</i>
<i>Calibrating the System.....</i>	<i>36</i>
POST INSTALLATION WELDING.....	37
SYSTEM OPERATION	38
System Start Up:	38
ON/OFF Button:	38
Warning Light:.....	38
Ride Mode Adjustment:	38
Ride Height Adjustment:	38
Depressurizing the System	39
Calibrating the Steering Sensor Only	40
TROUBLESHOOTING	41

<i>Issues with Vehicle Raising/Pump</i>	<i>41</i>
<i>Issues with Vehicle Lowering/Dump Valve.....</i>	<i>41</i>
<i>Issues with One Corner Not Leveling Properly.....</i>	<i>42</i>
<i>Issues with Height Sensors</i>	<i>42</i>
<i>Issues with Ride/Handling</i>	<i>42</i>
<i>Issues with Steering Sensor</i>	<i>42</i>
<i>Issues with Vehicle Speed Signal</i>	<i>43</i>
<i>Issues with Vehicle Brake Signal</i>	<i>43</i>
<i>Issues with Door Switch.....</i>	<i>43</i>
<i>Issues with Vehicle Ignition Signal.....</i>	<i>43</i>
<i>Issues with Vehicle Park Signal.....</i>	<i>43</i>
<i>Issues with Power Module</i>	<i>44</i>
<i>Issues with Strut Assembly.....</i>	<i>44</i>
<i>Issues with Secondary Volume Assembly.....</i>	<i>45</i>

PART IDENTIFICATION:.....	46
DS96GM-AR.....	46
DS96GM-ARC	48
DS96GM-AM.....	50
DS96GM-AMC	52
DS96GM-MR	54

ELECTRICAL SCHEMATICS	56
------------------------------------	-----------

Introduction

This manual provides installation information for the LiquidSpring **CLASS**® DS96GM series of rear axle suspension systems for the General Motors Chevrolet/GMC G3500/G4500 cutaway chassis.

Before you begin installation of the suspension system:

1. Read and understand all instructions and procedures prior to installation of components.
2. Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.
3. Follow your company's maintenance and service, installation, and diagnostics guidelines.
4. Use special tools when required to help avoid serious personal injury and damage to components.

Throughout this manual, important product information is preceded by the terms “NOTE”, “IMPORTANT”, “CAUTION”, and “WARNING”. These terms are defined as follows:

NOTE: Includes additional information to enable accurate and easy performance of procedures.

IMPORTANT: Includes additional information that if not followed could lead to hindered product performance and/or product failure.

CAUTION: A caution indicates procedures that must be followed exactly. Damage to equipment or suspension components and personal injury can occur if the procedure is not followed.

WARNING: A warning indicates procedures that must be followed exactly. Serious personal injury can occur if the procedure is not followed.

LiquidSpring LLC reserves the right to modify the suspension and/or procedures and to change specifications at any time without notice and without incurring obligation.

Suspension Application

LiquidSpring offers three (3) versions of the DS96GM line of suspensions:

Suspension	Application
DS96GM-AM, -AMC	3500 and 4500 cutaway chassis with mid-ship mounted fuel tanks
DS96GM-AR, -ARC	3500 and 4500 cutaway chassis with rear mounted fuel tanks
DS96GM-MR	3500 and 4500 cutaway chassis with rear mounted fuel tanks—designed for motor home use.

Suspension Rating

The LiquidSpring line of DS96GM suspensions can be used on both the Chevrolet/GMC G3500 and G4500 cutaway chassis. Suspension ratings are based on the OEM rear axle rating of each chassis:

Model	Chevrolet/GMC G3500	Chevrolet / GMC G4500
DS96GM-AM/-AMC	8,600 lbs	9,600 lbs
DS96GM-AR/-ARC	8,600 lbs	9,600 lbs
DS96GM-MR	8,600 lbs	9,600 lbs

Always use the rear axle GAWR posted on the driver side door opening.

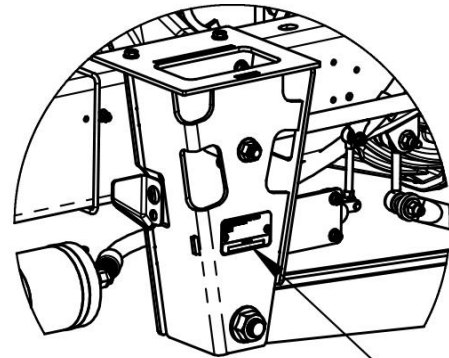
WARNING: Overloading suspension system may result in abnormal handling characteristics and premature wear of components.

Serial Number Tag Information

The serial number is found on an aluminum tag (Figure 1) that is riveted to the Left Hand Suspension Hanger as shown in Figure 2. This information will aid you when contacting the chassis manufacturer or LiquidSpring LLC.



Figure 1. Serial Tag



Serial Plate Location

Figure 2. Serial Number Tag Location

Vehicle Towing and Jacking Information

Before attempting any type of towing procedures, the vehicle manufacturer must be referred to for the recommended towing methods.

NOTE: Before towing vehicle, check with local authorities, such as Department of Transportation, for permissible towing methods. Some states do not permit towing vehicles by chains or towing straps.

Do not attach tow apparatus (hooks, chains, straps, etc.) to the suspension components.

WARNING: Attaching towing equipment to improper locations and failure to utilize OEM/Coach Builder recommended towing methods could result in one or more of the following:

Damage to the suspension and/or vehicle,

Loss of vehicle control,

Possible disconnect from the vehicle.

WARNING: Do not apply jack to bottom of front hanger or other suspension components. Applying a jack to improper locations can result in damage to the suspension and/or vehicle and severe personal injury.

Abbreviations

The following abbreviations will be used throughout the manual.

HCS Hex Cap Screw

HFB Hex Flange Bolt

SHCS Socket Head Cap Screw

SFHS Serrated Flange Hex Screw

STS Self Tapping Screw

HN Hex Nut, Non-locking

LHN Locking Hex Nut

LFN Locking Flange Nut

CHN Castle Hex Nut

HTCN Hex Thin Castle Nut

HFW Hardened Flat Washer

SLW Spring Lock Washer

FW Flat Washer

SAE SAE O-Ring Fitting

37° SAE or JIC 37° Flare Fitting (F – Female)

LH Left Handed Part

RH Right Handed Part

UCA Upper Control Arm

LCA Lower Control Arm

Special Tools

The following tools can assist in installation of the LiquidSpring system.



Bleed Kit (Actron 7840 shown, others similar).



Gallon Hand Pump (Autotec 57429 shown, other similar)

Hydraulic Fitting Assembly

SAE O-Ring Adjustable Fittings

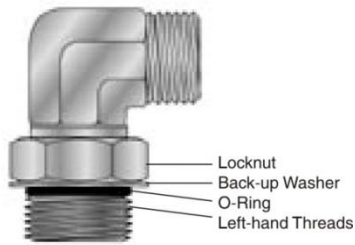


Figure 3. Adjustable SAE fitting

1. Inspect components to ensure that male and female port threads and sealing surfaces are free of burrs, nicks and scratches, or any foreign material.
2. If O-ring or seal is not pre-installed to fitting male port end, install proper size O-ring or seal, taking care not to damage it.
3. Lubricate O-ring with light coat of the system fluid or a compatible lubricant to help the O-ring slide smoothly into the port and avoid damage.

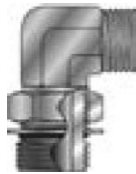


Figure 4. Locknut completely backed off.

4. Back off lock nut as far as possible. Make sure back-up washer is not loose and is pushed up as far as possible.
5. Screw fitting into port until the back-up washer or the retaining ring contacts face of the port. Light wrenching may be necessary. Over tightening may damage washer.
6. To align the tube end of the fitting to accept incoming hose assembly, unscrew the fitting by the required amount, but not more than one full turn.
7. Using two wrenches, hold fitting in desired position and tighten locknut to the proper torque value:
-4 fitting: **14-16 ft-lbs (168-192 in-lbs)**
-12 fitting: **75-83 ft-lbs.**
8. Inspect to ensure that O-ring is not pinched and that washer is seated flat on face of port.

SAE O-Ring Non-Adjustable Fitting

1. Inspect components to ensure that male and female port threads and sealing surfaces are free of burrs, nicks and scratches, or any foreign material.

2. If O-ring or seal is not pre-installed to fitting male port end, install proper size O-ring or seal, taking care not to damage it.
3. Lubricate O-ring with light coat of the system fluid or a compatible lubricant to help the O-ring slide smoothly into the port and avoid damage.
4. Screw fitting into port and tighten to proper torque:
-4 fitting: **26-28 ft-lbs (310-341 in-lbs)**
-12 fitting: **75-83 ft-lbs.**

JIC 37° Fitting

1. Inspect components to ensure that male and female threads and sealing surfaces are free of burrs, nicks and scratches, or any foreign material. Annular tool marks of 100µin with the thread are permissible.
2. Lubricate the threads and the entire surface of the cone with system fluid.
3. Align mating components for hand connection and turn flare nut until sealing surfaces make full contact.
4. Using two wrenches, hold fitting in desired position and tighten to the proper torque:

-4 fitting: 9-12 ft-lbs	-10 fitting: 36-63 ft-lbs
-8 fitting: 27-39 ft-lbs	-12 fitting: 65-88 ft-lbs

Pre-Installation

1. Check the vehicle rear wheel alignment prior to installation to insure pre-existing conditions do not exist.
2. It is suggested, but not required, to remove the attached body to ease installation.
3. A chassis lift can be used in assistance of the installation of the suspension system.
4. Measure and record the wheelbase and rear tire-to-frame dimensions on each side prior to disassembly.

Frame Preparation

1. Disconnect battery.
2. Chock the front tires.
3. Jack up the rear frame of the vehicle to remove the load from the rear leaf springs.
4. Place jack stands under the frame and block the rear tires from moving.

Note: Jack stands can be placed under the axle and the tires removed for ease of access. It is recommended to place an additional jack stand under the pinion to prevent the axle from rotating.

5. Remove the OEM shock absorbers.

6. Remove the OEM leaf springs and rear shackles.
7. Disconnect the parking brake cable by the following:
 - a. Verify that the parking brake is not applied.
 - b. Locate the parking brake connector (see Figure 5).



Figure 5. Parking Brake Connector

- c. Flatten the rear most dimple and unhook the rear cable.
- d. Locate the parking brake equalizer (see Figure 6).



Figure 6. Parking Brake Equalizer

- e. Unhook the passenger side parking brake cable from the equalizer.
- f. Disconnect the passenger side parking brake cable from the frame bracket.
- g. Squeeze the tabs on the grey connector and slip the parking brake cable out of the way.
- h. By squeezing the tabs, disconnect the driver side parking brake cable from the equalizer and slip the parking brake cable out of the frame bracket.
- i. Remove the parking brake cable retainers from the driver side of the frame, both fore and aft of the axle. Retain the cable retainers and fasteners for reuse.

- j. Disconnect the passenger side parking brake cable from axle tube. The mount will be reused to remount the cable. Discard the screw.

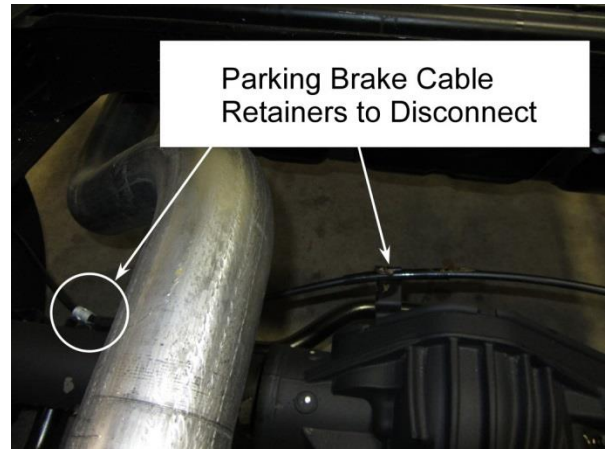
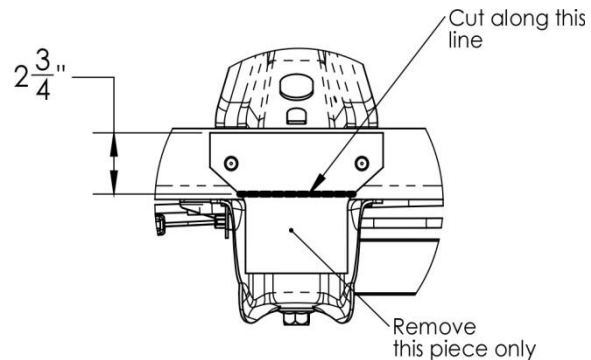


Figure 7. Passenger Side Parking Brake Cable Retainers at Axle

8. Cut top plate from front spring hanger as shown. Do NOT cut into frame rail.



9. Remove the front leaf hangers. The rivets can be removed by grinding, air chiseling, or torching off the heads. Then use a hammer and punch to remove the remainder of the rivet. Leave top plate riveted to top of frame rail.
10. If the vehicle is equipped with a mid-ship fuel tank, it is recommended to drop the fuel tank temporarily to provide clearance to the inside of the frame..
11. Locate the plastic fuel line retainers, inside of the driver side frame rail.



Figure 8. Fuel line retainer

12. Loosen the plastic fuel line retainers, starting with the position just forward of the shock absorber and forward towards the cab. Leave these lines loose to allow clearance while drilling secondary volume mounts. Note: Fuel lines for mid-ship tank may vary.
13. **[Diesel, rear mounted fuel tank vehicles only]** Locate the side mounted DEF tank. Below the frame, locate the rearmost guard around the attaching fastener, see Figure 9. Trim off the lower lip approximately 1/4"-3/8" deep and 1"-1-3/16" high. See Figure 10.

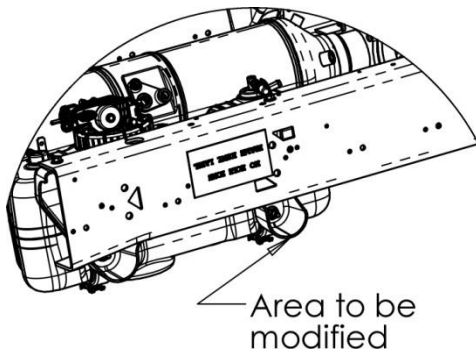


Figure 9. DEF tank mount to be modified.

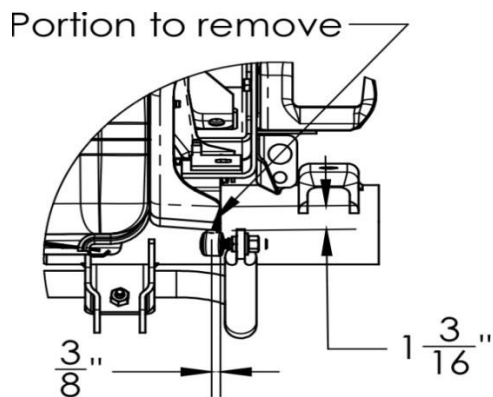


Figure 10. Area to remove from DEF tank mount.

14. Locate the Left Hand Upper Strut Mount and place against frame as shown in Figure 11, fitting around the stud below the frame/cross-member connection. Center frame hole in forward hole and hold flush to bottom of frame.

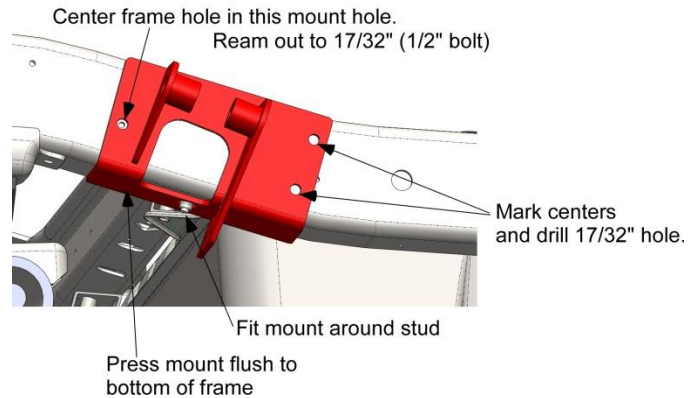


Figure 11. Upper Strut Mount Drilling (Left Hand Shown).

15. Mark centers of remaining rear-most holes. Drill Ø17/32".
16. Ream out indicated hole to Ø17/32".
17. Upper Strut Mount can be attached. See **Upper Strut Mounts** on Page 13.
18. Repeat with Right Hand Upper Strut Mount.
19. On the driver side, at the frame hump, locate the following holes and ream out to Ø7/16" or Ø11mm.

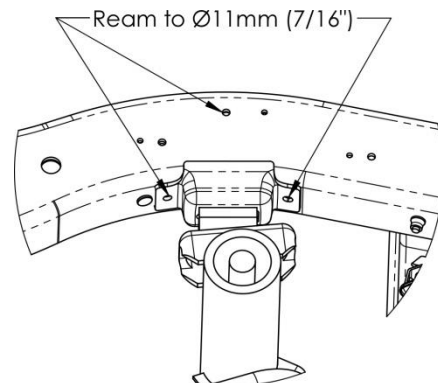
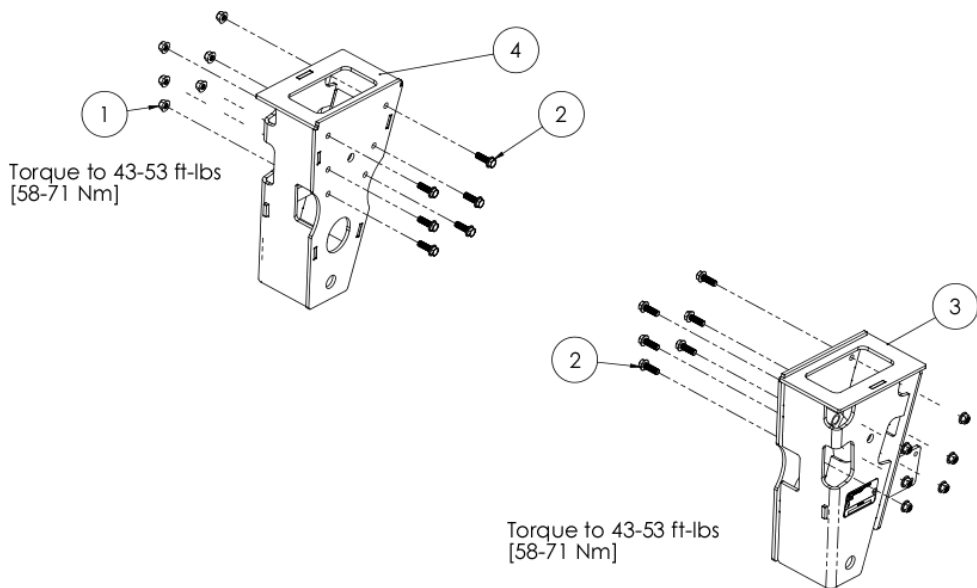


Figure 12. Track Rod Mount holes to be reamed out. Driver side only.

20. Also see **Secondary Volumes** Page 15 for additional drilling requirements.

Installation

Front Hangers



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	12	10873-002	LFN M10-1.5 CL 10.9 Z	3	1	10538-003	Left Hand Hanger
2	12	10502-001	HFB M10-1.5 x 30, CL 10.9 Z	4	1	10539-006	Right Hand Hanger

1. Install the Left Hand Hanger (with serial tag) to the driver side of the frame using the (6) M10 x 30 Hex Flange Bolts and M10 Locking Flange Nuts.

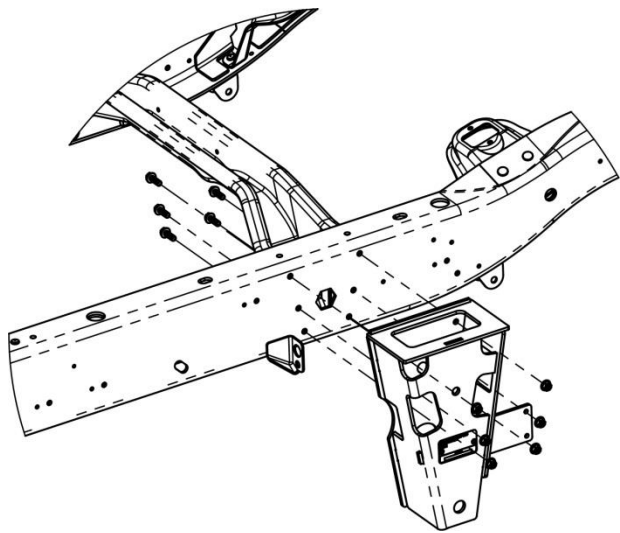
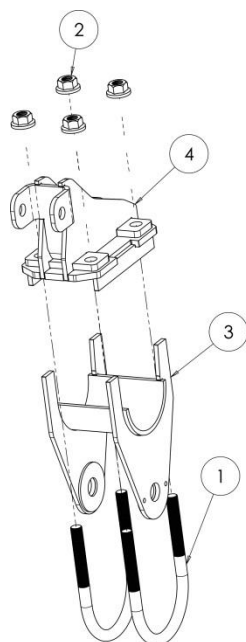


Figure 13. Installation of Front Hangers

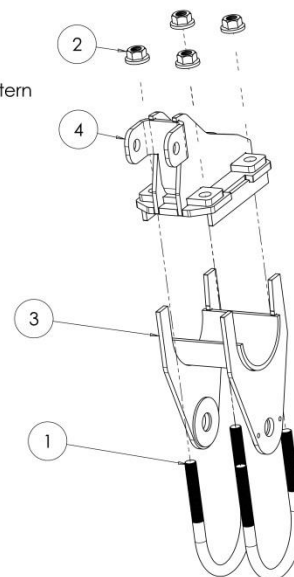
2. Torque to **43-53 ft-lbs**. Note: On DS96GM-AM (vehicles with mid-ship mounted fuel tanks), see **Hose Attachment and Routing [DS96GM-AM, -AMC]** Section, before tightening all fasteners.
3. Repeat with Right Hand Hanger to the passenger side of the frame.

Axle Connection



Torque U-bolt nuts evenly in an X-type pattern in the following stages:

Torque to 75 ft-lbs
Torque to 150 ft-lbs
Torque to 175-200 ft-lbs



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	10642-001	U-Bolt 5/8-18 x 7.00 Gr 8	3	2	10947-002	Lower Control Arm Mount
2	8	10012-013	LFN 5/8-18 Gr. G, Black Phos	4	2	10984-001	Upper Control Arm Mount

1. Place the Upper Control Arm Mount on top of the axle seat, with the locating bolt head centered in the top slot. Orientate the UCA clevis forward.
2. Slip the Lower Control Arm Mount under the axle until the extended legs line up with the UCA mount.

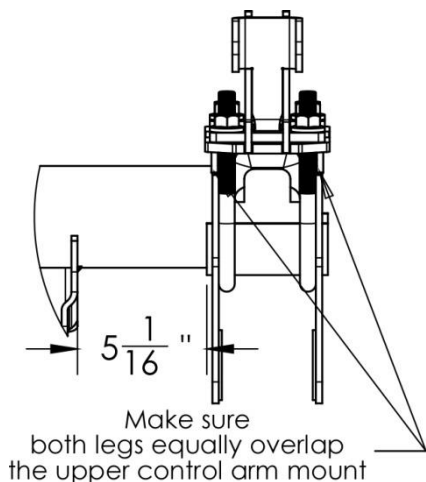


Figure 14. Axle clamp installation.

3. Slip the 5/8" U-Bolts under the LCA mount and secure using the 5/8" Locking Flange Nuts.
4. Snug down 5/8" Locking Flange Nuts, but

IMPORTANT: To aid control arm installation, do not torque until after control arms are installed.

Note. It is recommended that the gaps between the upper control arm mount and lower control arm mount be equal, or have the forward set contacting on both sides.

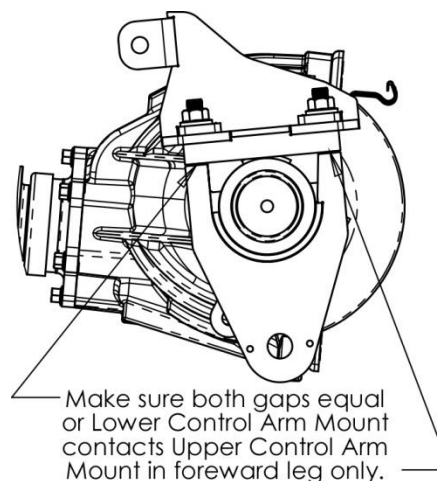
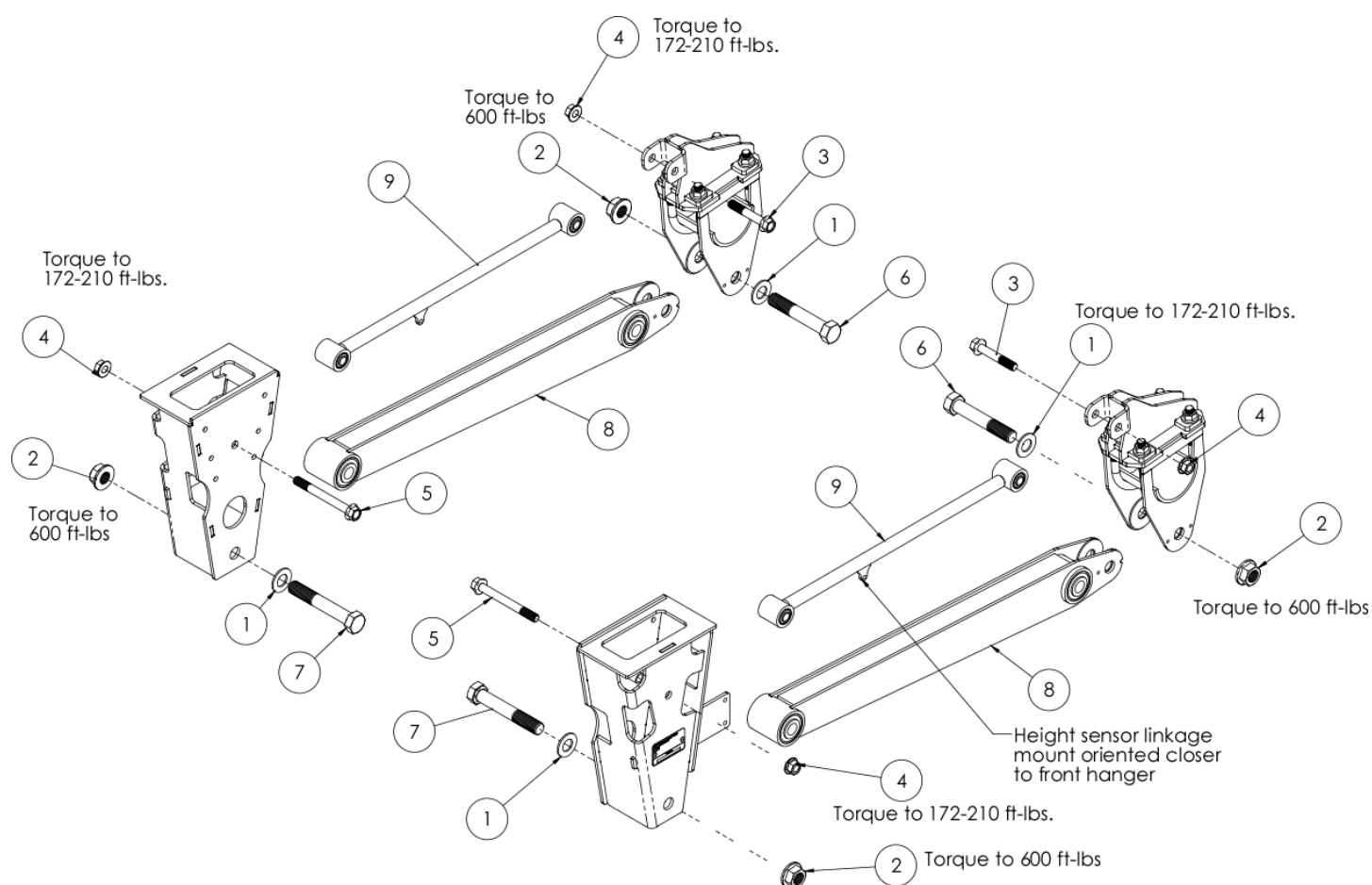


Figure 15. Check mount orientation.

5. Repeat for other side.

Control Arms



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	10006-004	HFW 1.00 Zinc	6	2	10003-003	HCS 1-8 x 6.00 Gr 8 Zinc
2	4	10012-003	LFN 1-8 Gr G Zinc Top Lock	7	2	10003-004	HCS 1-8 x 6.50 Gr 8 Zinc
3	2	10874-375	HFB 5/8-11 x 3.750 Gr 8 BO	8	2	10953-002	Lower Control Arm
4	4	10012-008	LFN 5/8-11 Gr G, Black Phos	9	2	10570-004	Upper Control Arm
5	2	10874-600	HFB 5/8-11 x 6" Gr. 8, BO				

- Loosely install the Upper and Lower Control Arms as shown above.

Note: Orientate Upper Control Arms with height sensor tab forward and down.

IMPORTANT: Fasteners must be orientated towards the outboard as shown.

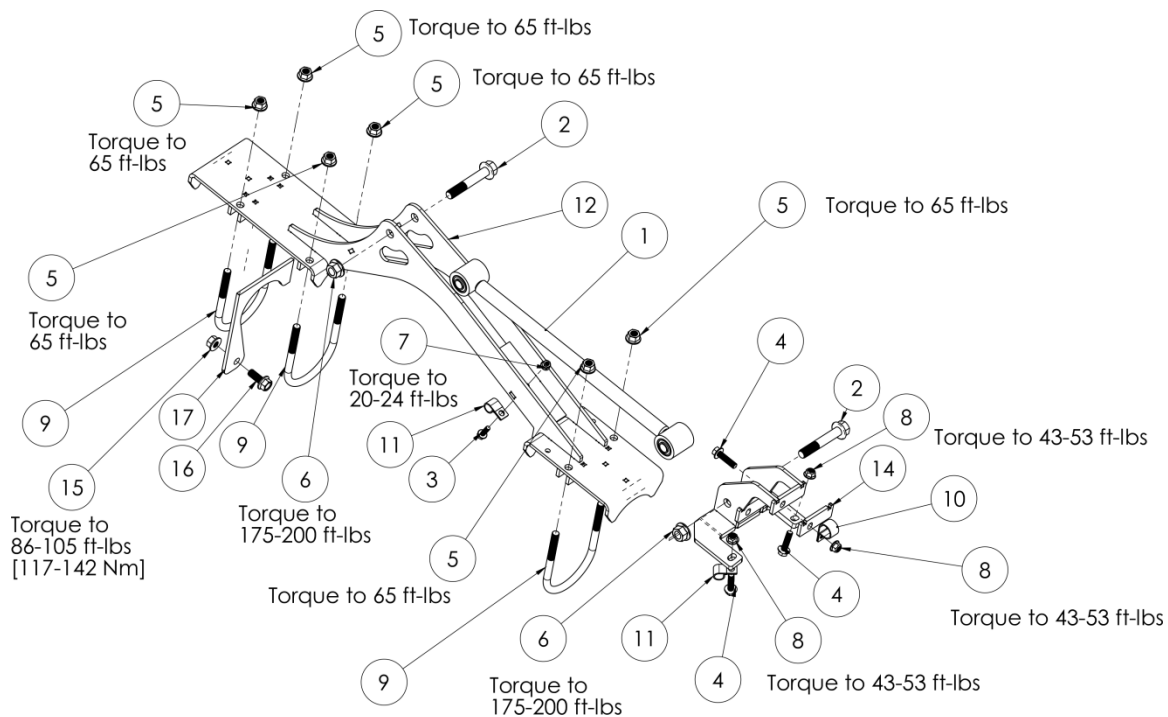
IMPORTANT: Verify that the 1"-8 x 6.00" Hex Cap Screw is used to attach the Lower Control Arm to the LCA mount at the axle and that the 1"-8 x 6-1/2" Hex Cap Screw is used to attach the LCA to the Hanger.

- Torque U-Bolts as specified in **Axle Connection** Section.

- Do not tighten control arm fasteners until track rod is in place and axle is raised to ride height.

Note: The axle must be held at ride height before torquing control arm bolts to prevent preloading the bushings.

Track Rod Mounting



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	10570-003	Track Rod	10	1	10855-002	Vinyl-Coated Loop Clamp 1" ID
2	2	10874-375	HFB 5/8-11 x 3.750, Gr 8, BO	11	2	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
3	1	10886-100	HFB 5/16-18 x 1.000, Gr 8 BO	12	1	10762-004	Track Rod Mount Bridge
4	3	10502-002	HFB M10-1.5 x 40 CL 10.9 Z	13	1	10789-006	Track Rod Frame Mount
5	6	10012-004	LFN 1/2-20, Gr G, BO	14	1	10993-001*	Track Rod Mount Spacer Plate*
6	2	10012-008	LFN 5/8-11 Gr G, BO	15	1	10012-007	LFN 1/2-13, Gr. G
7	1	10012-010	LFN 5/16-18 Gr. G BO	16	1	10885-125	HFB 1/2-13 x 1-1/4" Gr. 8
8	3	10873-002	LFN M10-1.5 CL 10.9 Z	17	1	11048-001	Bracket, Bridge Orientation
9	3	10383-002	U-Bolt 1/2-20 x 6.50 Gr 5				

*The Track Rod Mount Spacer Plate is only used on chassis without the welded in reinforcement plate. See instructions below.

1. Visually inspect the inside of the chassis frame rail in the area that "humps" over the rear axle and note if GM has welded in frame reinforcement. See figures below.

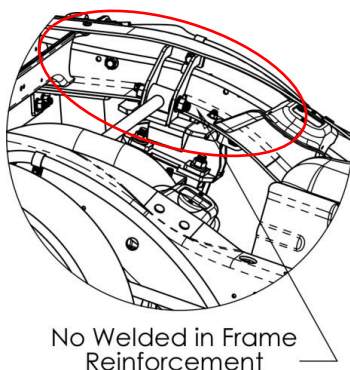


Figure 16. Frame without internal frame reinforcement.
Add 10993-001.

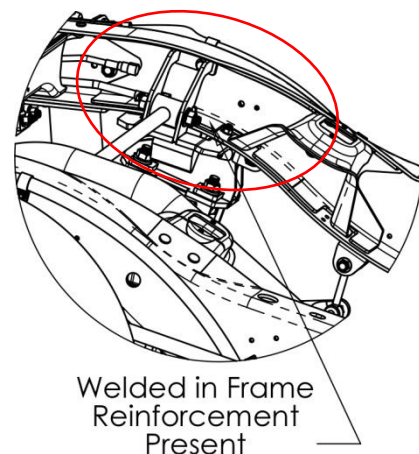


Figure 17. Frame with internal frame reinforcement. Do not add 10993-001.

2. Install the Track Rod Frame Mount to the driver side frame rail, with the two arms attached from beneath the frame. If the frame is not equipped with a welded in frame reinforcement, add the 10993-001 Track Rod Mount Spacer Plate, item 14, between the track rod mount and the frame.
3. Snug down the fasteners.
4. Slip the Bridge Orientation Bracket over the axle and secure to the indicated passenger side shock mount hole. Torque fasteners to **86-105 ft-lbs.**

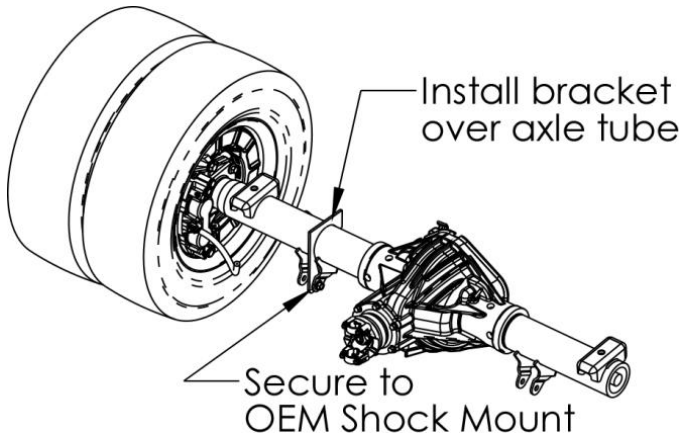


Figure 18. Installation of Bridge Orientation Bracket.

5. Install the track rod bridge.

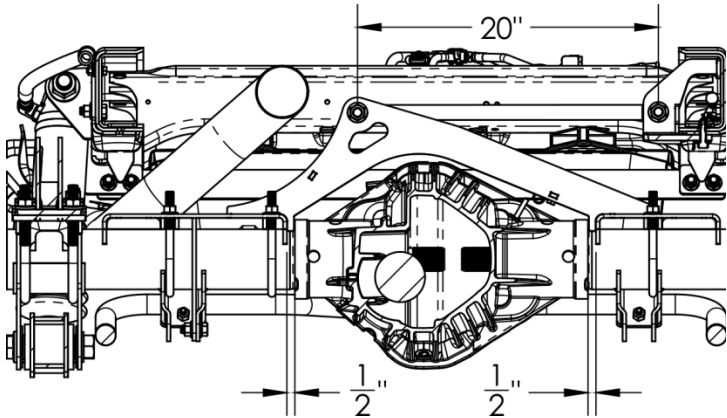
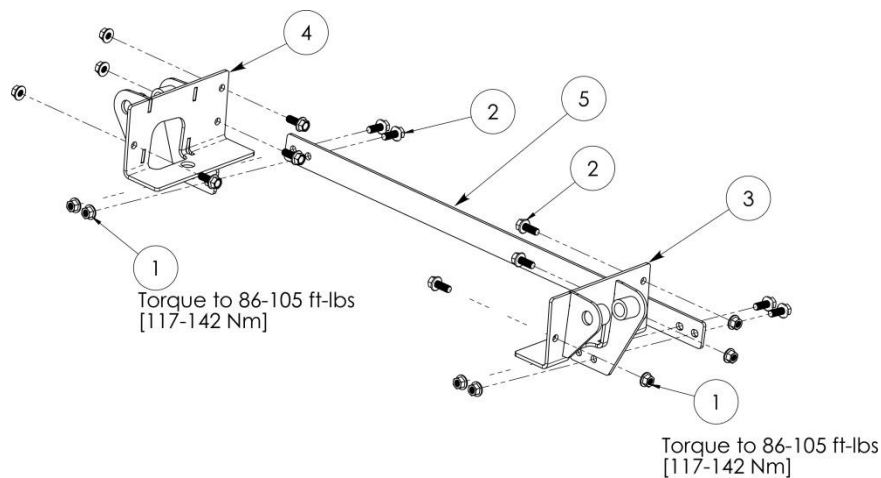


Figure 19. Centering Track Rod Bridge

6. Slip U-bolts under the axle, through shock mounts, and torque **U-bolts to 65 ft-lbs.**
7. Loosely install the track rod.

Upper Strut Mounts



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	10	10012-007	LFN 1/2-13 Gr G	4	1	10564-004	Right Hand Upper Strut Mount
2	10	10885-125	HFB 1/2-13 x 1.250 Gr 8	5	1	10988-001	Crossmember Reinforcement
3	1	10564-003	Left Hand Upper Strut Mount				

1. Loosely attach the Left Hand and Right Hand Upper Strut Mounts to the frame.

IMPORTANT: Bolts must point away from fuel tank.

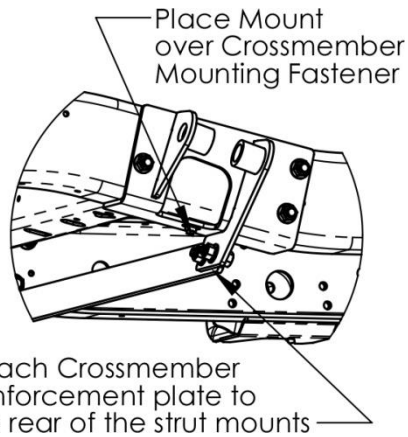
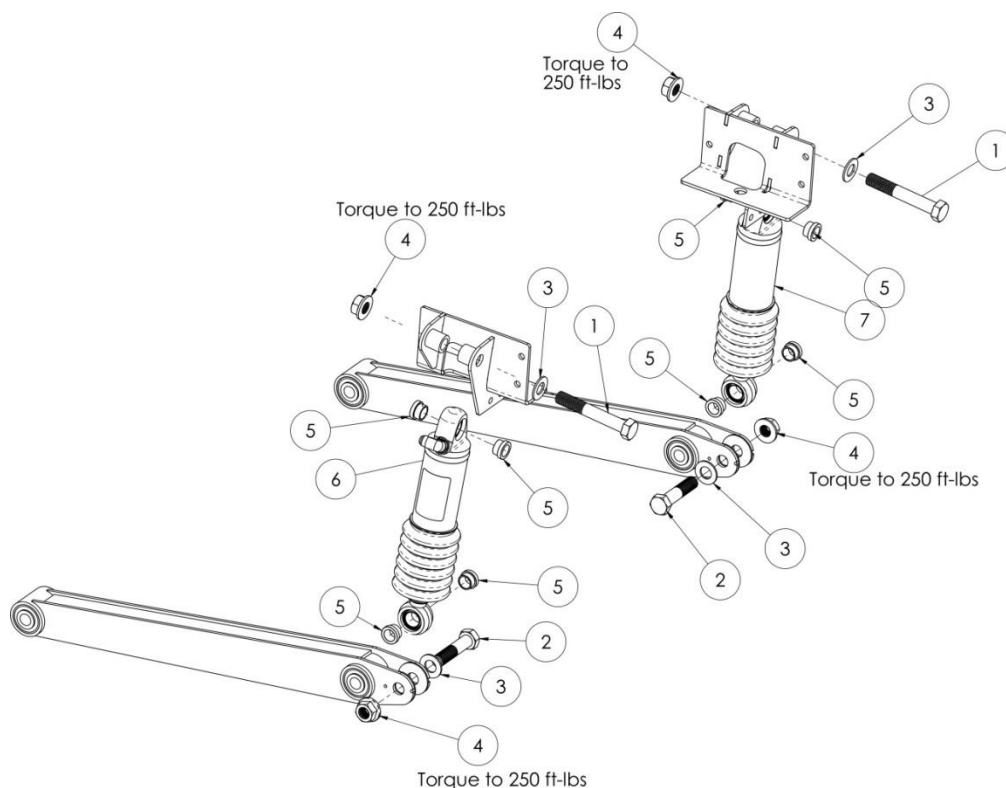


Figure 20. Installation of upper strut mount.

2. Attach the cross-member reinforcement plate to the rear of the upper strut mounts.
3. Torque all fasteners to **86-105 ft-lbs.**

Struts



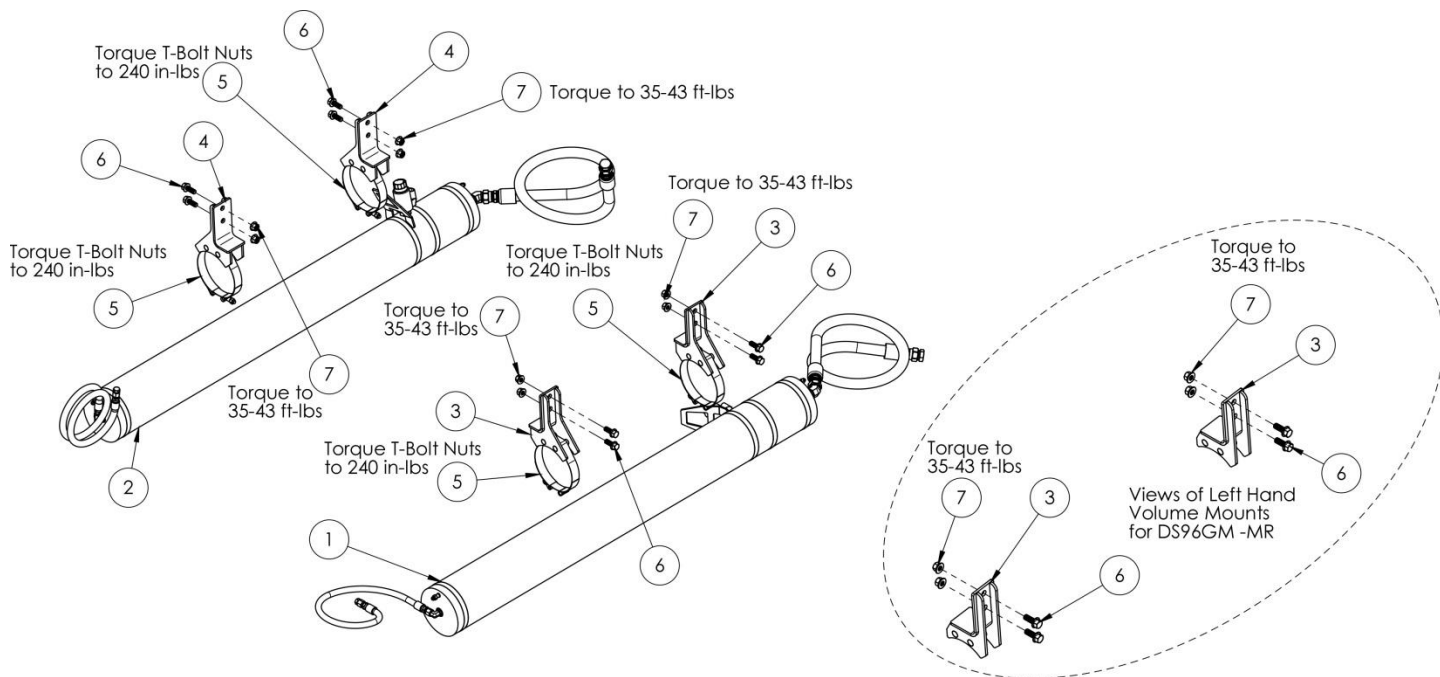
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	10003-005	HCS 1-8 x 4.500", Gr. 8	6	1	11057-001	Left Hand Strut
4	4	10012-003	LFN 1-8	7	1	11057-002	Right Hand Strut
5	8	10640-002	Bearing Spacer, 1.25x1.02x.318				

1. Install the Left Hand Strut assembly as shown making sure to install bearing spacers on both upper and lower mounts.

Note: Verify Hydraulic port is pointed forward.

2. Repeat for installation of Right Hand Strut assembly.
3. Torque upper and lower strut mounts to **250 ft-lbs**.

Secondary Volumes (DS96GM-AR, -AM, -MR)



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	10597-029	Volume, LH [DS96GM-AR/AM]	4	2	10830-013	Volume Mount
	1	10597-037	Volume, LH [DS96GM-MR]	5	4	10843-003	T-Bolt Clamp
2	1	10597-030	Volume, RH [DS96GM-AR/AM]	6	8	10501-001	HFB 3/8-16 x 1.000 Gr 8
	1	10597-038	Volume, RH [DS96GM-MR]	7	8	10012-005	LFN 3/8-16, Gr G
3	2	10830-013	Volume Mount [DS96GM-AR/AM]				
	2	10830-014	Volume Mount [DS96GM-MR]				

1. Locate (2) Volume Mounts:
p/n 10830-013 [DS96GM-AR and -AM], or
p/n 10830-014 [DS96GM-MR].

Note: The DS96GM-M uses unique Volume Mounts on the driver side. The DS96GM-AR and DS96GM-AM use the same mounts on both sides of the vehicle. Refer to table above for identification of mounts.

2. Place the mounts against the driver side frame, forward of the front hanger. Figure 21 shows suggested locations. The mounts can be relocated based on frame mounts, etc.

Important: Locate the mounts such that the distance between two mounts as wide as possible. Avoid partially drilling through existing frame holes and inside fuel line mounts.

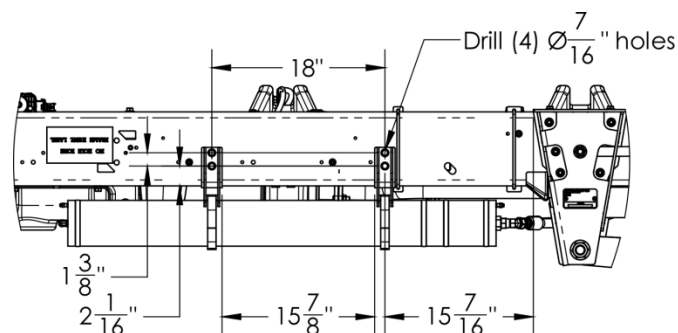


Figure 21. Volume suggested mount locations

3. Verifying the mounts are held flush to the bottom of the frame and utilizing the mount hole pattern, mark the locations of the mounting holes and drill (2) $\varnothing 7/16$ " holes per mount.
4. Attach the two mounts with 3/8" Flange Bolts and Nuts. **Torque to 35-43 ft-lbs.** Note: Orientate nuts outboard.
5. Repeat with Volume Mounts on the passenger side of the frame.

6. Locate the Left Hand Volume, which includes the shorter -4 hydraulic hose attached.

WARNING: Each Volume Assembly is heavy (in excess of 100 lbs). Use of a portable lift, crane, or suitable jack is recommended to support the Volume Assembly during installation.

7. Raise the volume assembly until the volume contacts both mounts. Rotate the volume assembly until the bleed screws are located to the top and as vertical as possible. The Rate Valve and Guard should be perpendicular to the side of the frame, pointing inboard, under the frame rail. See Figure 22.
8. Locate (2) T-Bolt Clamps, open the mounts, and place them in the mounts, on top of the two pegs.
9. Secure both clamps around the volume and torque the T-Bolt nut to **240 in-lbs**.

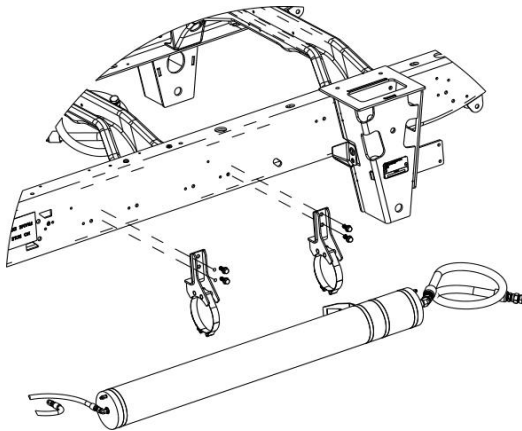


Figure 22. Left Hand Volume installation.

10. Locate the Right Hand Volume.
11. Raise the volume assembly until the volume contacts both mounts. Rotate the volume assembly until the bleed screws are located to the top and as vertical as possible. The Rate Valve and Guard should be pointing up, outboard of the frame. See Figure 23.

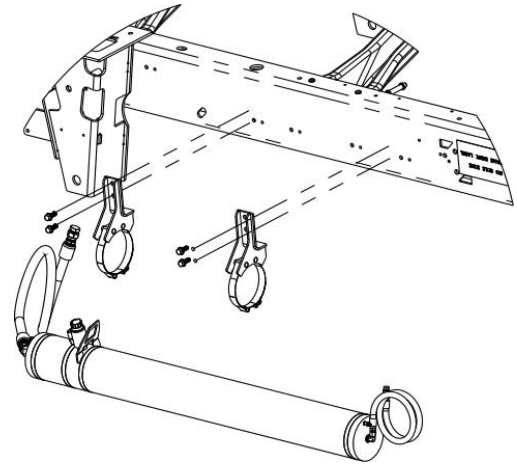
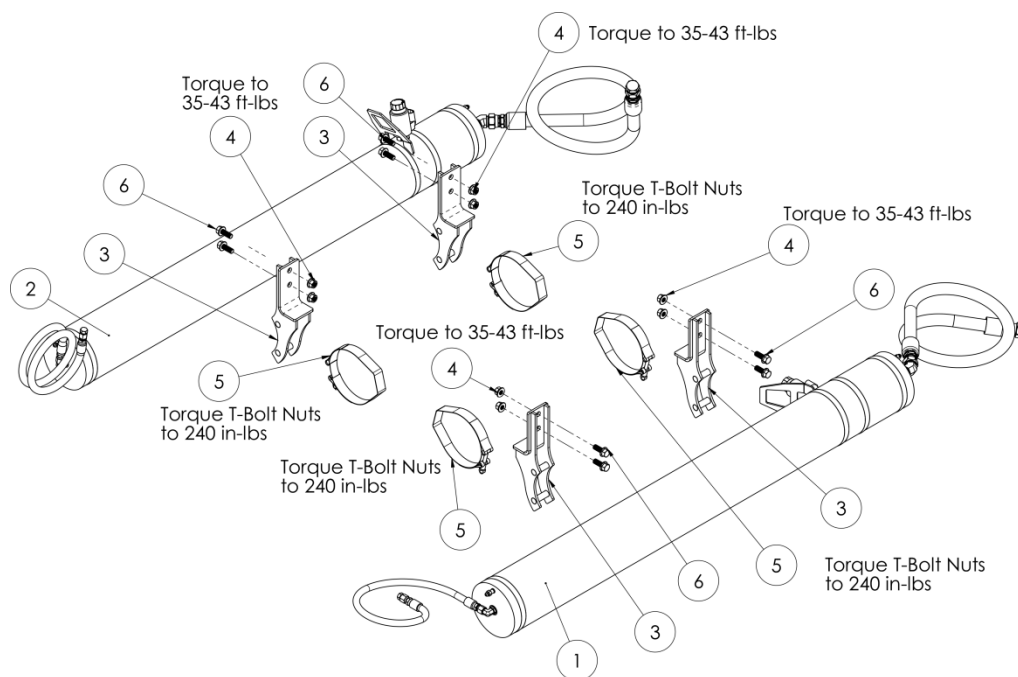


Figure 23. Right Hand Volume installation.

12. Locate (2) T-Bolt Clamps, open the mounts, and place them in the mounts, on top of the two pegs.
13. Secure both clamps around the volume and torque the T-Bolt nut to **240 in-lbs**.

Secondary Volumes (DS96GM-ARC, -AMC)



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	10597-029	Asy, Volume Left Hand	4	8	10012-005	LFN 3/8-16 Gr G
2	1	10597-030	Asy, Volume Right Hand	5	4	10843-003	T-Bolt Clamp
3	4	10830-015	Volume Mounts	6	8	10501-001	HFB 3/8-16 x 1", Gr 8

1. Locate (2) Volume Mounts.
2. Place the mounts against the driver side frame, forward of the front hanger. Figure 24 shows suggested locations. The mounts can be relocated based on frame mounts, etc.

Important: Locate the mounts such that the distance between two mounts as wide as possible. Avoid partially drilling through existing frame holes and inside fuel line mounts.

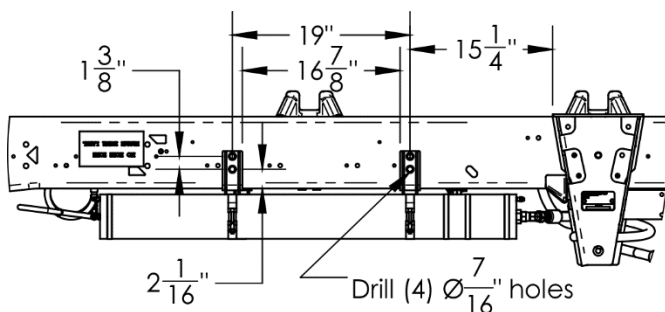


Figure 24. Volume suggested mount locations

3. Verifying the mounts are held flush to the bottom of the frame and utilizing the mount hole pattern, mark the locations of the mounting holes and drill (2) $\text{Ø}7/16$ " holes per mount.

4. Attach the two mounts with 3/8" Flange Bolts and Nuts. **Torque to 35-43 ft-lbs.** Note: Orientate nuts outboard.
5. Repeat with Volume Mounts on the passenger side of the frame.
6. Locate the Left Hand Volume, which includes the shorter -4 hydraulic hose attached.

WARNING: Each Volume Assembly is heavy (in excess of 100 lbs). Use of a portable lift, crane, or suitable jack is recommended to support the Volume Assembly during installation.

7. Raise the volume assembly until the volume contacts both mounts. Rotate the volume assembly until the bleed screws are located to the top and as vertical as possible. The Rate Valve and Guard should be perpendicular to the side of the frame, pointing inboard, under the frame rail. See Figure 25.
8. Locate (2) T-Bolt Clamps, open the mounts, and place them in the mounts, around the two pegs.
9. Secure both clamps around the volume and torque the T-Bolt nut to **240 in-lbs.**

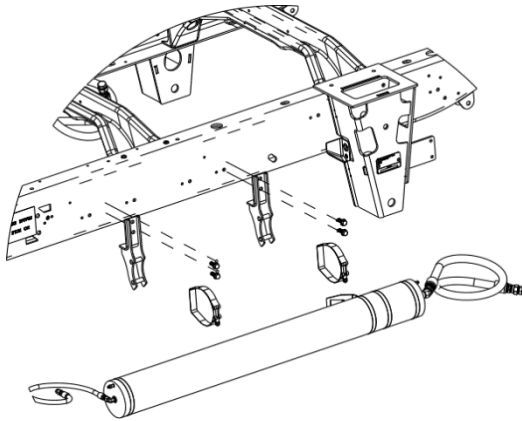


Figure 25. Left Hand Volume installation.

10. Locate the Right Hand Volume.
11. Raise the volume assembly until the volume contacts both mounts. Rotate the volume assembly until the bleed screws are located to the top and as vertical as possible. The Rate Valve and Guard should be pointing up, outboard of the frame. See Figure 26.

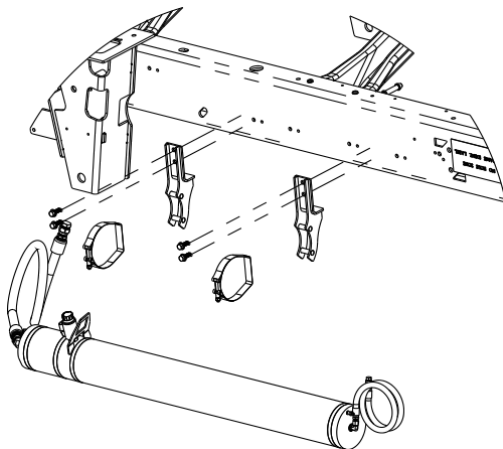
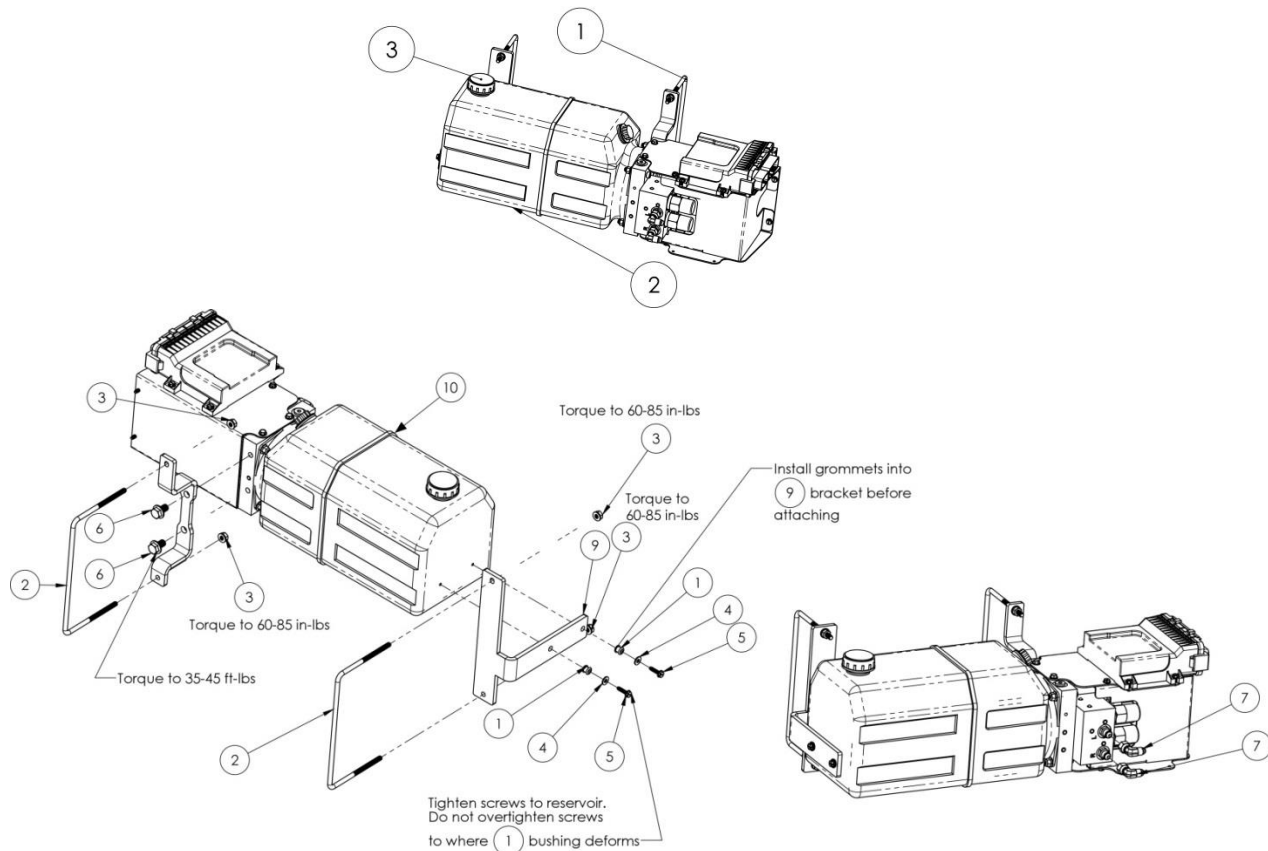


Figure 26. Right Hand Volume installation.

12. Locate (2) T-Bolt Clamps, open the mounts, and place them in the mounts, around the two pegs.
13. Secure both clamps around the volume and torque the T-Bolt nut to **240 in-lbs.**

Power Module [DS96GM-AR, -ARC, -MR]

Power Module Components			
ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	10968	Kit, Power Module Mount, Side
2	1	10941-002	Asy, Power Module DS96GM-M
3	1	10614-001	Cap, Filler/Breather



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1*	2	10805-007	Grommet, .19ID x .44OD x .375T	7*	2	10322-021	Hyd. Fit. 90, -4 37 x -4 37 F
2*	2	10669-006	U-Bolt, 1/4-20, Gr 2	8*	1	10647-002	Manifold Mount
3*	4	10012-009	LFN 1/4-20 Gr G	9*	1	10648-002	Reservoir Mount
4*	2	10088-001	FW #10	10	1	10941-001	Power Module, DS96GM-AR
5*	2	10510-002	STS #10-16 x .750, Hex Head			10941-002	Power Module, DS96GM-MR
6*	2	10252-003	SFHS 3/8-16 x .625, Gr 8.2			10941-006	Power Module, DS96GM-ARC

*Components part of Power Mounting Kit P/N 10968

1. Locate the Power Module Assembly and Power Module Manifold Mount
2. Locate the Breather Cap. Replace top plug with Breather Cap.
3. Attach the bracket to the power module pump head manifold using the serrated flange screws. **Torque to 35-45 ft-lbs.**
4. Locate the Power Module Reservoir Mount and grommets.
5. Install the grommets into the reservoir mount.
6. Attach bracket to the reservoir using the flat washers and self-tapping screws.
7. Locate the power module mounting location on the frame.

IMPORTANT: Do not overtighten screws into reservoir. Bushings should not be deformed when attached. Overtightening of screws can damage plastic reservoir.

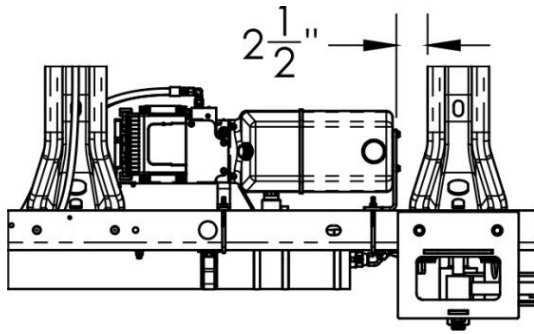
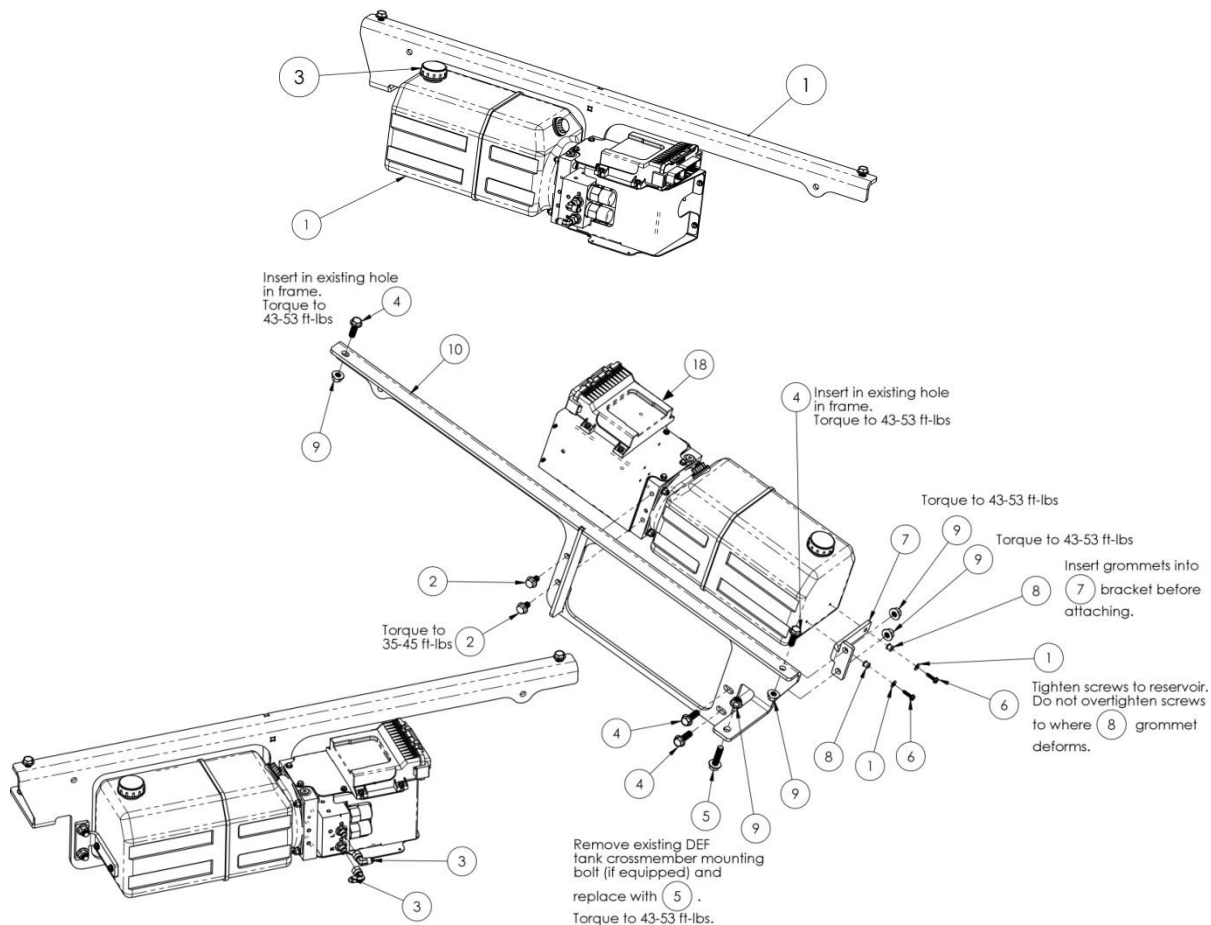


Figure 27. Recommended Power Module mounting location.

8. Attach the center bracket on the power module to the frame with U-bolt and fasteners. **Do not tighten fasteners.**
9. Attach the reservoir side of the power module to the frame using U-bolt and fasteners.
10. Torque all four (4) locking flange nuts to **60-85 in-lbs.**
11. Remove the (2) caps from the fittings on the power module.
12. Locate (2) -4 JIC Elbows.
13. Attach the elbows to the straight fittings located in the power module manifold, loosely.
14. Orientate the elbows as shown.
15. While holding the body of the fitting, tighten the swivel nut to **12 ft-lbs.**
16. Proceed to **Hose Attachment and Routing** [DS96GM-AR, -ARC, -MR] section.

Power Module [DS96GM-AM, -AMC]

Power Module Components			
ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	10969	Kit, Power Module Mount, Rear
2	1	10941-006	Asy, Power Module, DS96GM-xxC
3	1	10614-001	Cap, Filler/Breather



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1*	2	10088-001	FW #10	11*	2	10321-036	Hyd. Fit, -4 37 x -4 37 Union
2*	2	10252-003	SFHS 3/8-16 x .625 Gr 8.2	12*	1	10675-007	Hose, -4 x 52-5/8" L
3*	2	10322-021	Hyd. Fit 90, -4 37 x -4 37 F	13*	1	10675-008	Hose, -4 x 105-1/4" L
4*	4	10502-001	HFB M10-1.5 x 30 CL 10.9	14*	7	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
5*	1	10502-002	HFB M10-1.5 x 40 CL 10.9	15*	2	10012-010	LFN 5/16-18, Gr G
6*	2	10510-002	STS #10-16 x .750 Hex Head	16*	2	10886-100	HFB 5/16-18 x 1.000 Gr 8
7*	1	10798-007	Reservoir Mount	17*	1	10860-001	Fire Sleeve, 5/8" ID x 60" L
8*	2	10805-007	Grommet, .19 ID x .44 OD x .375T	18	1	10941-001	Power Module, DS96GM-AM
9*	5	10873-002	LFN M10-1.5, CL 10.9			10941-006	Power Module, DS96GM-AMC
10*	1	10970-002	Frame Mount	*Components part of Power Mounting Kit P/N 10969 (#11-17 not shown)			

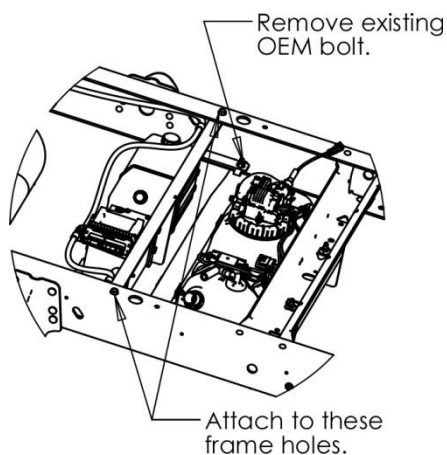


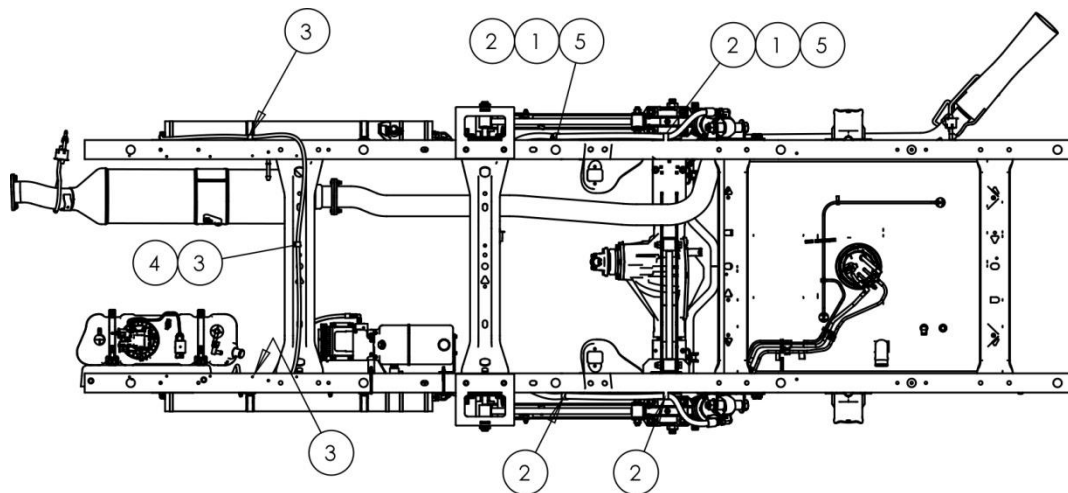
Figure 28. -AM Power Module Mounting

1. [Diesel rear mounted DEF tank only]. Remove the lower cross-member mounting bolt on passenger side.
2. Locate the Frame Mount and attach it to the frame at the indicated frame holes.
3. Locate the Power Module Assembly
4. Attach the bracket to the power module pump head manifold using the serrated flange screws. **Torque to 35-45 ft-lbs.**
5. Locate the Power Module Reservoir Mount and grommets.
6. Install the grommets into the reservoir mount.
7. Attach bracket to the reservoir using the flat washers and self-tapping screws.

IMPORTANT: Do not overtighten screws into reservoir. Bushings should not be deformed when attached. Overtightening of screws can damage plastic reservoir.

8. Remove the (2) caps from the fittings on the power module.
9. Locate (2) -4 JIC Elbows.
10. Attach the elbows to the straight fittings located in the power module manifold, loosely.
11. Orientate the elbows as shown.
12. While holding the body of the fitting, tighten the swivel nut to **12 ft-lbs.**
13. Proceed to **Hose Attachment and Routing** [DS96GM-AM, -AMC] section.

Hose Attachment and Routing [DS96GM-AR, -ARC, -MR]



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10012-010	LFN 5/16"-18 Gr G	4	1	10873-002	LFN M10-1.5 CL 10.9
2	4	10855-002	Vinyl Coated Loop Clamp, 1"ID	5	2	10886-100	HFB 5/16-18 x 1.000" Grade 8
3	3	10855-003	Vinyl Coated Loop Clamp, 5/8" ID				

CAUTION: The DS96GM-MR Secondary Volume Assemblies are equipped with Normally-Closed Rate Valves, which separate the two chambers when power is not applied to the valve. Each chamber side must be bled separately.

CAUTION: Attachment of the hydraulic hoses may result in some spillage of fluid. Use of oil absorbent mats is recommended.

1. Locate -10 hose on Left Hand (driver side) Secondary Volume.
2. Route hose to strut area, around inboard of front hanger, then outboard of frame and over axle.

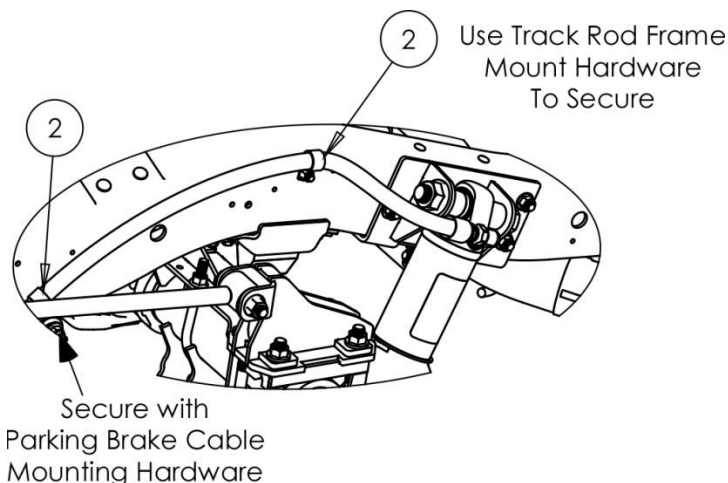


Figure 29. Drive side hose routing.

3. Locate 3/16" ID PVC Tubing (not included with kit). Note: Alternatively, a bleed kit similar to the Actron 7840 Bleed Kit can be used.
4. Attach the PVC tubing to the bleed screw on the -10 hose side of the Left Hand Secondary Volume Assembly and place the other end in a bucket.

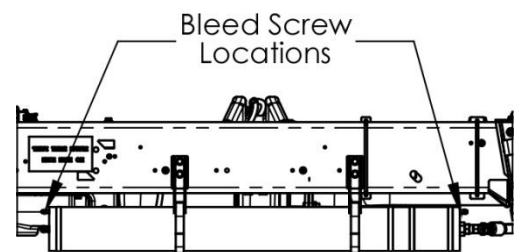


Figure 30. Bleed screw locations.

5. Open the bleed screw slightly to relieve any residual pressure.
6. After pressure is relieved, close the bleed screw and torque to **13-18 ft-lbs.**
7. Remove the cap from the strut port.
8. Raise the end of the -10 (5/8") hose, attached to the volume assembly, above the secondary volume to prevent fluid loss.
9. Remove the plug from the end of the hose.
10. Attach the hose end (-10 JIC fitting) to the strut port.
11. Torque to **36-63 ft-lbs.**
12. Secure hose with clamps as shown in Figure 29.

13. Repeat with the opposite side.

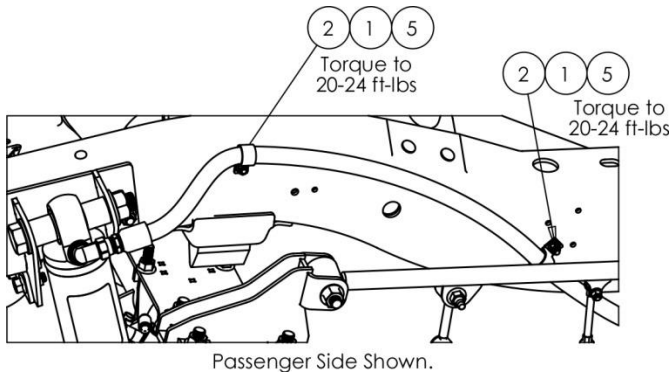


Figure 31. Passenger Side -10 hose routing.

14. Use hose clamps to secure hoses from movement and chafing.

CAUTION: Make sure the hose is not chafing or in contact with any sharp edges.

15. Attach the PVC tubing to the bleed screw on the -4 hose side of the Left Hand Secondary Volume Assembly and place the other end in a bucket.

16. Open the bleed screw slightly to relieve any residual pressure.

17. After pressure is relieved, close the bleed screw and torque to **13-18 ft-lbs.**

18. Route the Left Hand (Driver side) -4 (1/4") hydraulic hose, attached to the volume assembly, to the Power Module. Use of hose clamps is recommended to secure the hose from movement or chafing.

CAUTION: Make sure the hose is not chafing or in contact with any sharp edges.

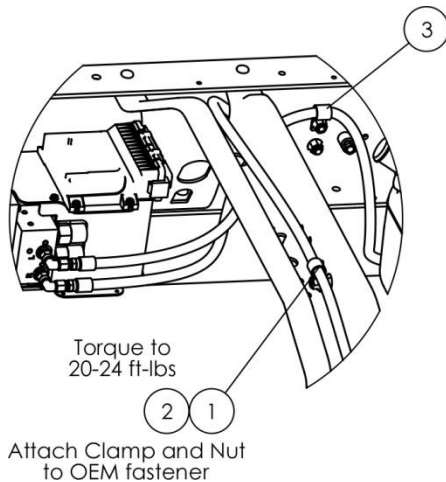


Figure 32. Driver side and Passenger side -4 Hose routing.

19. Remove the plug from the hose end.

20. Attach the hose end to the fitting in the port marked "L". Torque to **12 ft-lbs. Do not over tighten.**

21. Repeat with the opposite side.

22. Attach the hose end to the fitting in the port marked "R". Torque to **12 ft-lbs. Do not over tighten.**

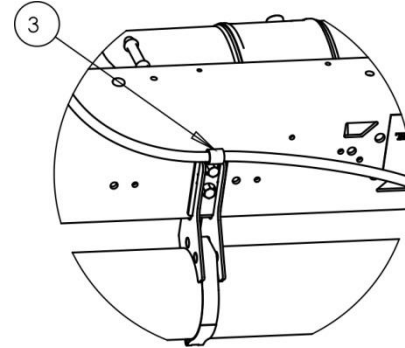
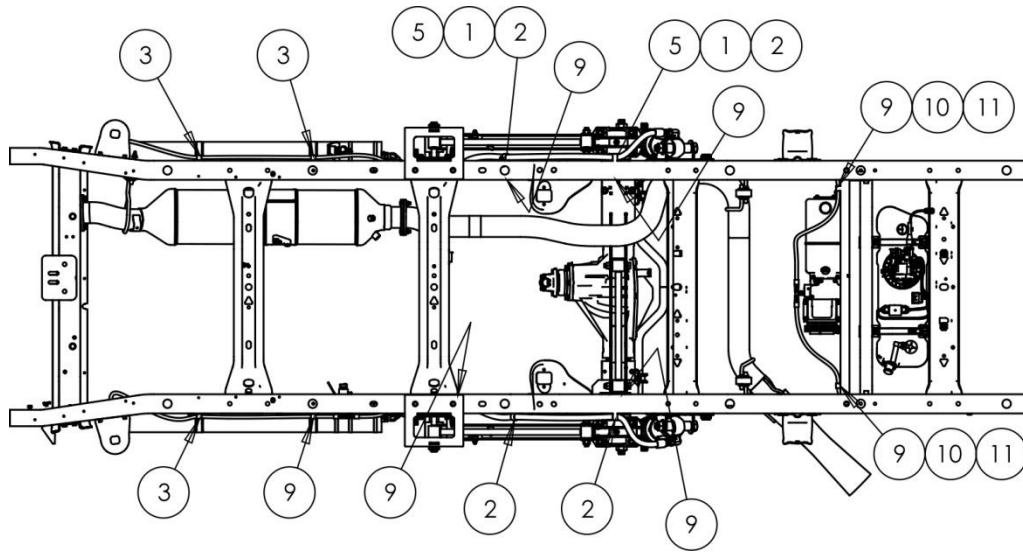


Figure 33. Passenger side -4 hose routing.

23. Clean up any fluid spillage.

Hose Attachment and Routing [DS96GM-AM, -AMC]



Components found in DS96GM-AM Top Level Kit				Components found in 10969 Power Module Mounting Kit			
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10012-010	LFN 5/16"-18 Gr G	6	2	10321-036	Hyd. Fit, -4 37 x -4 37 Union
2	4	10855-002	Vinyl Coated Loop Clamp, 1"ID	7	1	10675-007	Hose, -4 x 52-5/8" L
3	3	10855-003	Vinyl Coated Loop Clamp, 5/8" ID	8	1	10675-008	Hose, -4 x 105-1/4" L
4	1	10873-002	LFN M10-1.5 CL 10.9	9	7	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
5	2	10886-100	HFB 5/16-18 x 1.000" Grade 8	10	2	10012-010	LFN 5/16-18, Gr G
				11	2	10886-100	HFB 5/16-18 x 1.000 Gr 8
				12	1	10860-001	Fire Sleeve, 5/8" ID x 60" L

CAUTION: Attachment of the hydraulic hoses may result in some spillage of fluid. Use of oil absorbent mats is recommended.

1. Locate -10 hose on Left Hand (driver side) Secondary Volume.
2. Route hose to strut area, around inboard of front hanger, then outboard of frame and over axle.

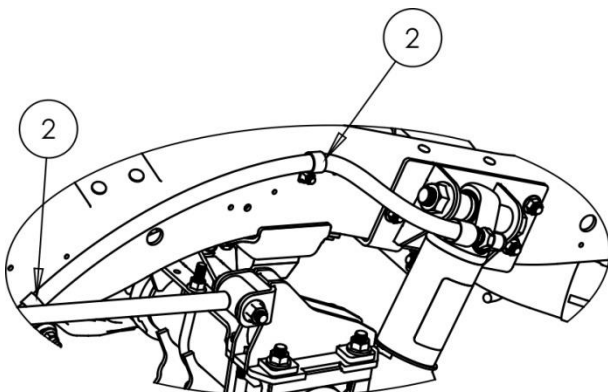


Figure 34. Drive side hose routing.

3. Locate 3/16" ID PVC Tubing (not included with kit).
Note: Alternatively, a bleed kit similar to the Actron 7840 Bleed Kit can be used.

4. Attach the PVC tubing to the bleed screw on the -10 hose side of the Left Hand Secondary Volume Assembly and place the other end in a bucket.

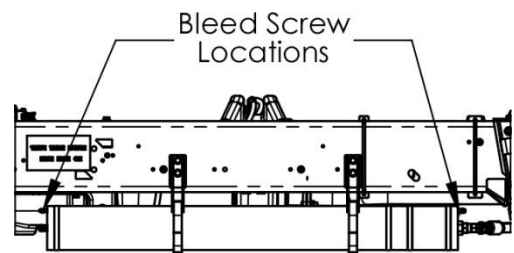


Figure 35. Bleed screw locations.

5. Open the bleed screw slightly to relieve any residual pressure.
6. After pressure is relieved, close the bleed screw and torque to **13-18 ft-lbs.**
7. Remove the cap from the strut port.
8. Raise the end of the -10 (5/8") hose, attached to the volume assembly, above the secondary volume to prevent fluid loss.
9. Remove the plug from the end of the hose.
10. Attach the hose end (-10 JIC fitting) to the strut port.

11. Torque to **36-63 ft-lbs.**
12. Secure hose with clamps as shown in Figure 29.
13. Repeat with the opposite side.

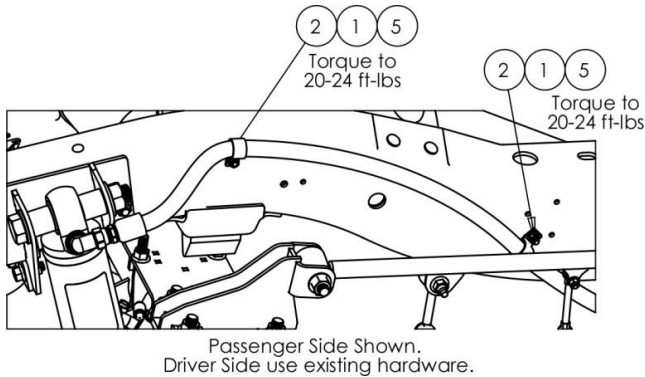


Figure 36. Passenger Side -10 hose routing.

14. Use hose clamps to secure hoses from movement and chafing.

CAUTION: Make sure the hose is not chafing or in contact with any sharp edges.

15. Attach the PVC tubing to the bleed screw on the -4 hose side of the Left Hand Secondary Volume Assembly and place the other end in a bucket.
16. Open the bleed screw slightly to relieve any residual pressure.
17. After pressure is relieved, close the bleed screw and torque to **13-18 ft-lbs.**
18. Locate the -4 Union Fitting and the 105-1/4" -4 (1/4") hydraulic hose in the Power Module Mount Kit.
19. Route the Left Hand (Driver side) -4 (1/4") hydraulic hose to the outboard side of the frame and along the frame.

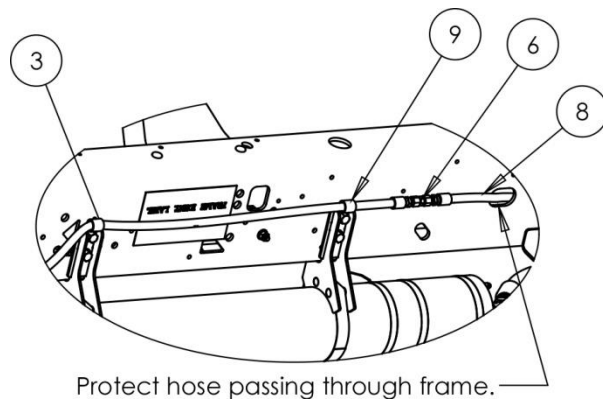


Figure 37. Routing to -4 hose on driver side.

20. Remove the plug from the hose end.

21. Attach the -4 JIC union fitting. Tighten to **12 ft-lbs. Do not over tighten.**
22. Attach one end of the 105-1/4" -4 hose to the other end of the union and tighten to **12 ft-lbs. Do not over tighten.**
23. Route the -4 hydraulic hose to the Power Module. Use hose clamps as indicated in Figure 37, Figure 38, and Figure 39.

CAUTION: Make sure the hose is not chafing or in contact with any sharp edges.

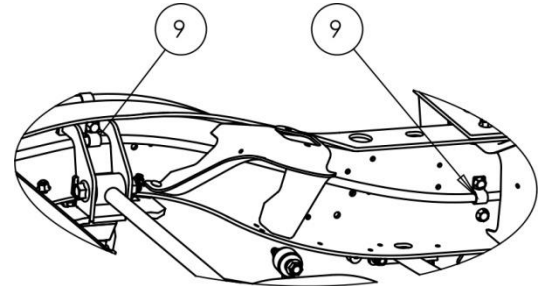


Figure 38. Frame inboard hose routing on driver side.

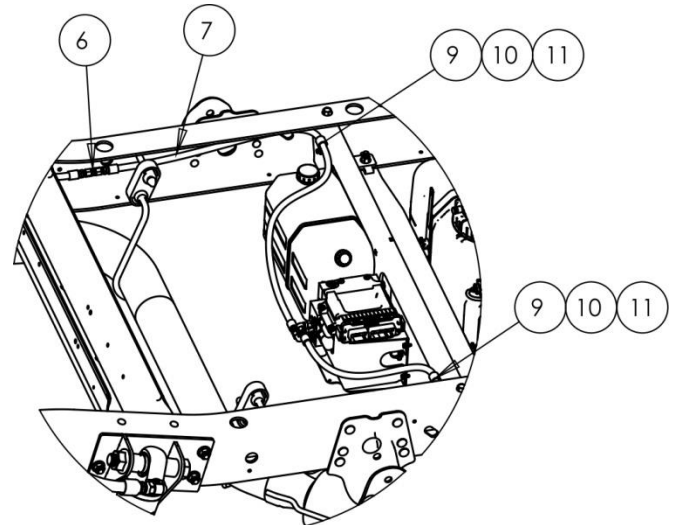


Figure 39. Hose routing aft of axle to power module.

24. Attach the hose end to the fitting in the port marked "L". Torque to **12 ft-lbs. Do not over tighten.**
25. Repeat with the opposite side, routing and securing hose. See Figure 39, Figure 40, and Figure 41.
26. Attach the hose end to the fitting in the port marked "R". Torque to **12 ft-lbs. Do not over tighten.**

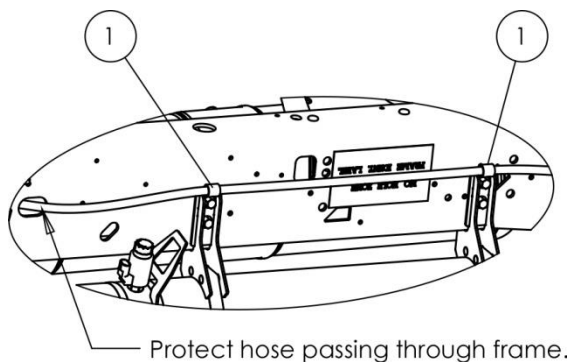


Figure 40. Passenger side -4 hose routing.

Chassis Assembly

Spacers for fuel lines

1. Locate the following parts in the kit:
 - a. (3) 10012-010 LFN 5/16-18
 - b. (3) 10886-175 HFB 5/16-18 x 1-3/4"
 - c. (3) 10800-004 Tube, .69OD x 5/8" L
2. Reattach the Fuel line plastic clips to existing frame holes using the Spacers between the clips and frame.



Figure 42. Fuel line clip spaced away from frame.

3. Torque to **14-17 ft-lbs.**

Parking brake cable routing

1. Reroute Driver side parking brake cable around back of strut and between bridge and differential housing. Use (1) 5/8" ID Vinyl Coated Loop Clamp, (1) HFB 5/16"-18 x 1", and (1) LFN 5/16"-18 to secure cable.

IMPORTANT: Make sure parking brake cable does not rub on tire throughout entire travel.

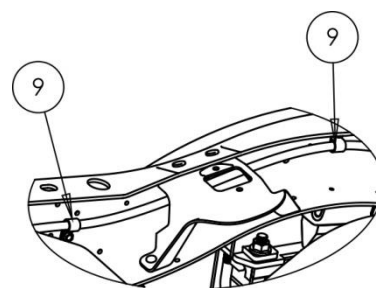


Figure 41. Frame inboard -4 hose routing on passenger side.

27. Clean up any fluid spillage.

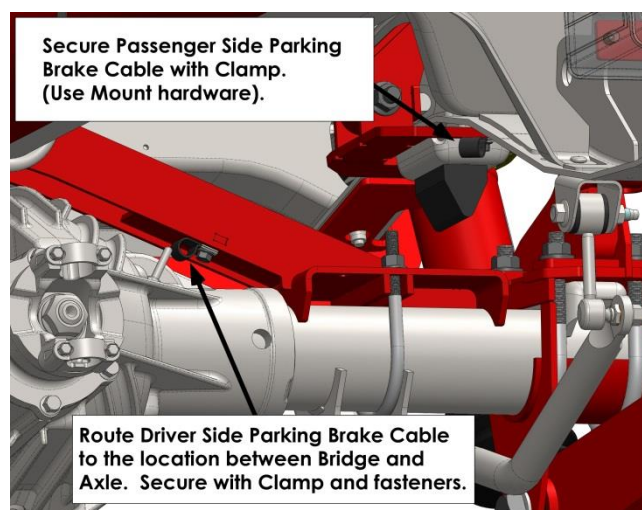


Figure 43. Parking Brake Cable Routing

2. Route Driver Side Parking Brake through OEM wire hanger and front hanger.

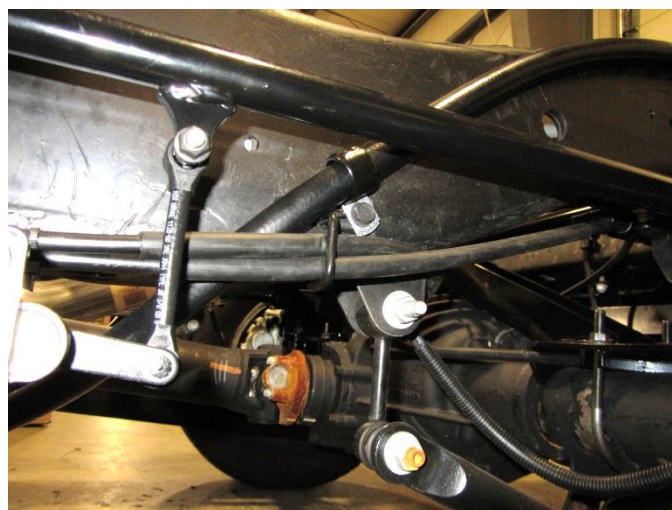


Figure 44. Routing of parking brake cables.

3. Locate the (2) 10800-004 Tubes and 11008-045 HCS M8-1.25 x 45.



Figure 45. Passenger side parking brake remounting.

4. Secure the passenger side parking brake cable to the original mount using the provided hardware. Orient the mount to route cable around passenger side strut and away from the tire and exhaust.
5. Route the passenger side parking brake cable over to the driver side front hanger.
6. Pull both the passenger and driver side parking brake cables through the hanger and reconnect to Parking Brake Equalizer and Connector.



Figure 46. Reshape wire keeper to hold parking brake cable away from volume mounts.

7. Bend the wire keeper along the frame to push the parking brake cable away from the secondary volume mounts.
8. Verify when parking brake is applied and released that it does not hang up on any of the mounts.

Final Torque

1. Raise axle to ride height.

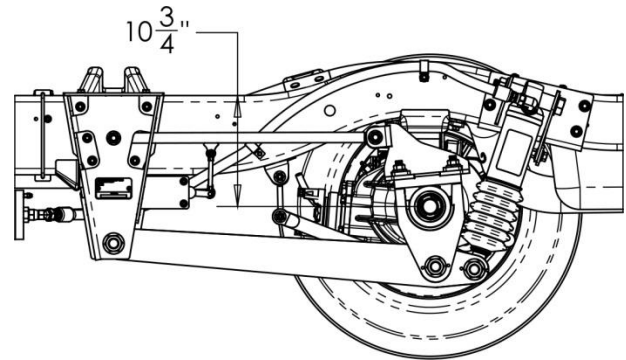


Figure 47. Target Ride Height.

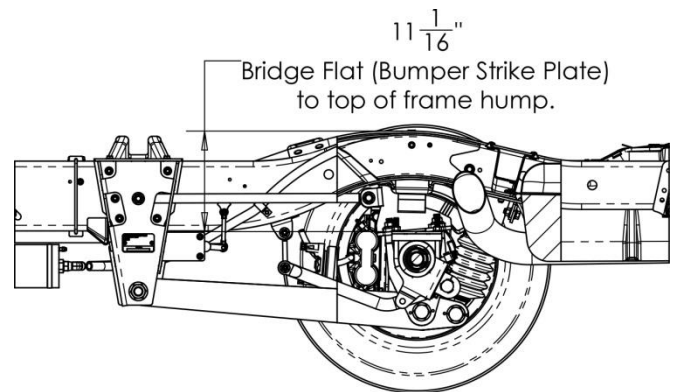
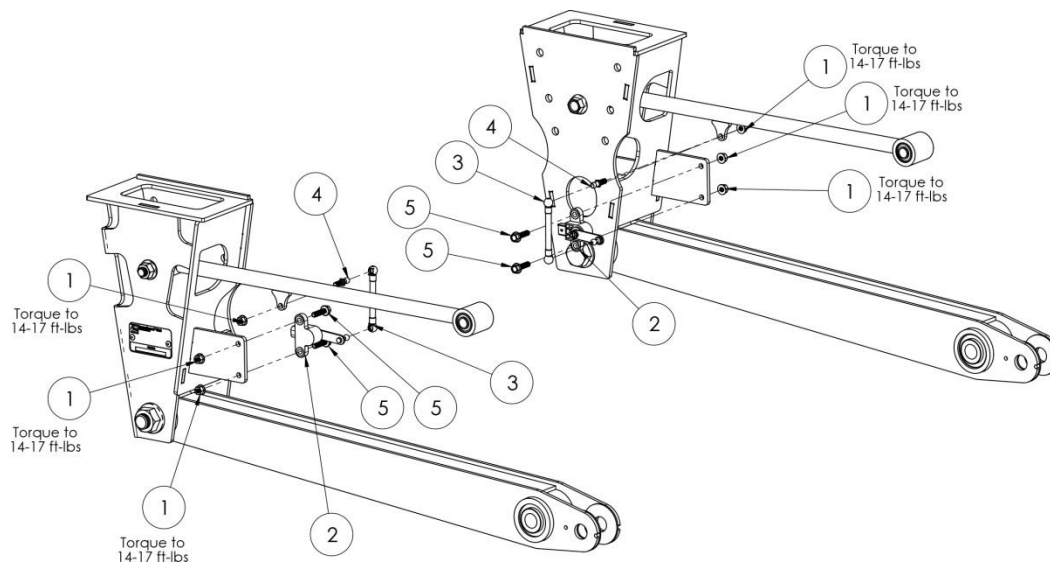


Figure 48. Alternate Ride Height

2. Torque all Control Arm fasteners per specifications listed in *Control Arms*.
3. Torque all Track Rod fasteners per specification listed in *Track Rod Mounting*.
4. Torque all Track Rod Frame Mount fasteners per specification listed in *Track Rod Mounting*.
5. [DS96GM-AM only] If mid-ship fuel tank was dropped previously, raise and reattach fuel tank.

Height Sensors



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10586-001	Asy, Height Sensor	4	2	10591-003	Ball Stud, 5/16-18 x .75L
2	2	10587-006	Asy, Linkage, 3.938" SS	5	4	10886-125	HFB 5/16-18 x 1.25 Gr 8
3	6	10012-010	LFN 5/16-18 Gr G				

IMPORTANT: Strut assemblies must be installed prior to the installation of the height sensors.

1. Locate the Height Sensor, Linkage Assembly, and Ball Stud.
2. Attach the Ball Stud to the Left Hand (Driver Side) Upper Control Arm, orientated with the ball pointing inboard, using the 5/16"-18 Locking Flange Nut. Torque to **14-17 ft-lbs.**
3. Attach the Height Sensor to the Left Hand (Driver Side) Hanger using the 5/16"-18x1.00" Hex Flange Bolt and 5/16"-18 Locking Flange Nut. Torque to **14-17 ft-lbs. Do not over torque.**
4. Snap the Linkage Assembly to the ball stud attached to the lower control arm and to the ball stud on the Height Sensor arm. Refer to **Figure 49 or Figure 50** for linkage detail.
5. Repeat with the Right Hand (Passenger Side).

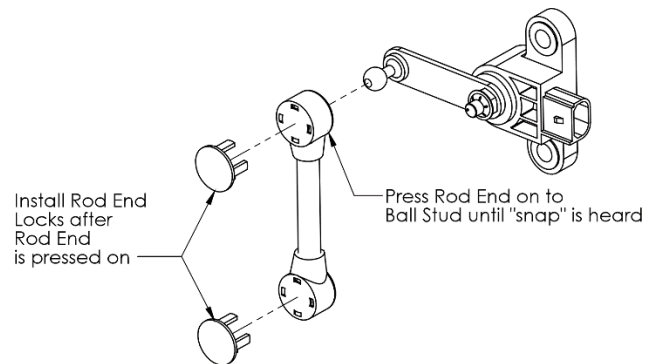


Figure 49. Height Sensor Plastic Linkage End Installation.

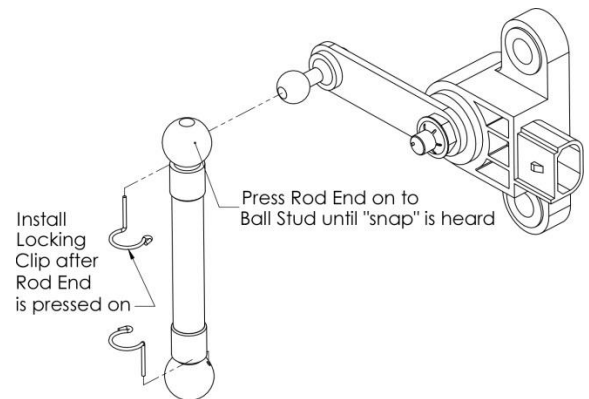
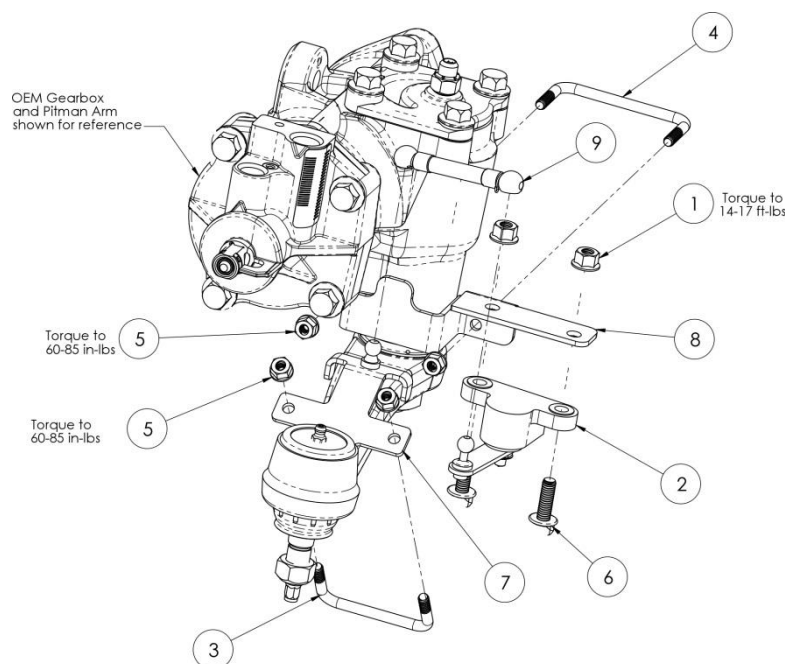


Figure 50. Height Sensor Metal Linkage End Installation.

Steering Sensors



ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10012-010	LFN 5/16-18 Gr G	6	2	10886-100	HFB 5/16-18 x 1.000 Gr 8
2	1	10586-002	Asy, Steering Sensor	7	1	10733-003	Pitman Arm Bracket
3	1	10669-002	U-Bolt, 1/4-20 x 2.438 x 1.375 Gr 2	8	1	10904-004	Bracket, Steering Sensor
4	1	10669-005	U-Bolt, 1/4-20 x 3.00 x 1.375 Gr 2	9	1	10587-007	Asy, Linkage, 2.887" SS
5	4	10012-009	LFN 1/4-20 Gr G				

1. Raise the front end of the vehicle per OEM instructions.



Figure 51. Access panel removal.

2. Remove front panel.
3. Locate the OEM gearbox and pitman arm.

4. Install Steering Sensor Bracket around gearbox, with the cutout near the tab, against the rib. See Figure 52 and Figure 53.

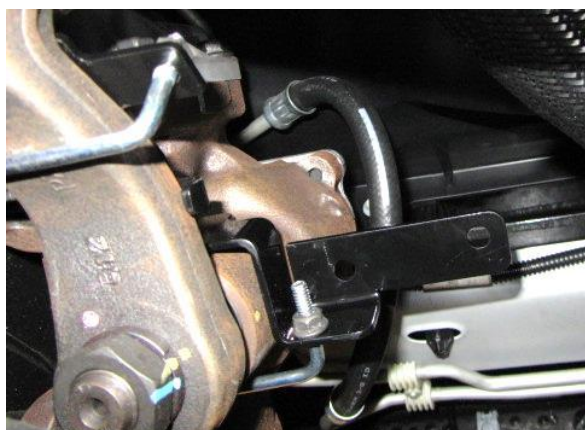


Figure 52. Installation of Steering Sensor Bracket

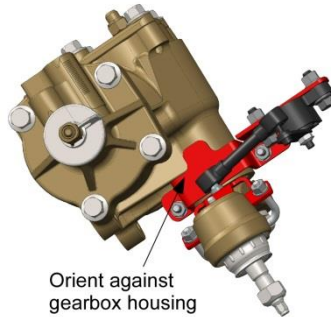


Figure 53. Steering Sensor Bracket placement.

5. Secure bracket with 3" wide x 1-3/8" leg 1/4"-20 U-bolt. Torque to **60-85 in-lbs.**
6. Install the Pitman Arm Bracket over the pitman arm. Slide bracket to contact boss. See Figure 54.

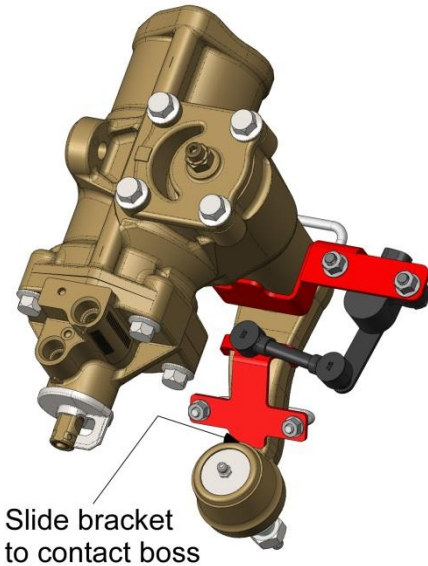


Figure 54. Pitman Arm Bracket installation.

7. Secure bracket with 2-7/16" wide x 1-3/8" leg 1/4"-20 U-bolt.
8. Install Steering Sensor onto bracket attached to gearbox. Torque fasteners to **14-17 ft-lbs. Do not over torque.**
9. Snap one end of the Steering Sensor Linkage over the ball on the pitman arm mounted bracket and the other on the ball on the steering sensor.
10. Verify Steering Sensor components are correctly orientated. It is recommended to steer the steering wheel full lock to lock to verify steering sensor does not over travel.



Figure 55. Steering sensor components installed.

11. Install the locking clips.

Wiring

1. Locate the External Electrical Harness attached to the power module.
2. Unroll the wiring harness and using the External Electrical Harness wiring diagram, found in the **Electrical Schematics** section, identify the connection ends.
3. Locate the trunk containing the Height Sensor (J21 and J22) and the Rate Valve (J23 and J24) connections.
4. Route the trunk towards the height sensors and rate valves.

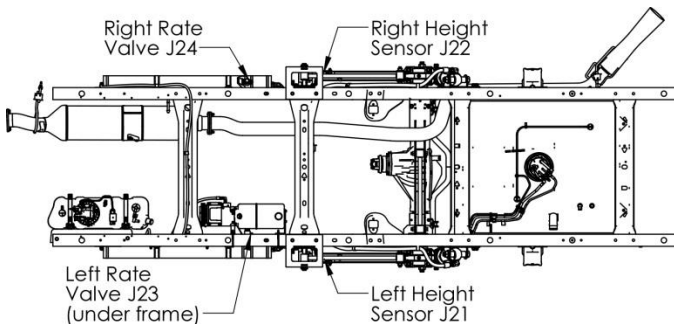


Figure 56. Sensor connections

5. Connect the height sensor and rate valve connections.
6. Secure the harness to OEM harness on the driver side. Use of plastic clips is recommended.
7. Locate the Black 8ga. wire ground ring terminal, J30, branch near the power module.
8. Locate and drill $\text{Ø}1/4''$ hole in frame. Remove frame coating(s) as needed to ensure metal-to-metal contact between the ring terminal and frame.
9. Attach the ground ring terminal, J30, to the chassis frame for grounding. Sealant should be applied after ring terminal is secured.
10. Route the remaining trunk (containing the blunt wires and steering sensor blunt wires) towards the cab. Secure to OEM wiring harness.
11. Remove the under dash trim panel.
12. Remove the trim pieces from the driver side door foot well. It is recommended unbolting the driver seat and leaning it over to provide access to the wires under the seat.
13. Under the foot well trim, drill an $\text{Ø}3/4''$ hole and insert grommet to protect the wires harness from chafing.



Figure 57. Access hole drilled into driver side foot well.



Figure 58. Access hole as seen from below cab.

14. Locate the bundle of (8) eight blunt wires.
15. Remove the electrical tape at the end of the loom.
16. Locate the Speed (Purple/White) and Brake (Pink/Black) wires.
17. Pull these two wires from the bundle. Additional electrical tape may have to be removed. The Speed wire will connect to the ABS controller under the cab on the driver side and the Brake will tie into the OEM wires along the frame rail.
18. Retape the remaining wires.

19. Feed the remaining wires from the bundle into the cab through the Ø3/4" hole.



Figure 59. Wiring harness routed into cab.

20. Locate the Dash Harness.
21. Identify the following 18ga wires on the Dash harness and crimp each wire to the corresponding wire on the External Harness fed into the cab:
- Red (Battery)
 - Yellow (Ignition)
 - Black (Ground)
 - White (CAN High)
 - White/Black (CAN Low)
 - Yellow/Black (Park)
22. Locate the wiring bundle under the driver seat and open cover.



Figure 60. Wiring access under driver seat.

23. Locate the brown wire (OEM 341) and splice the Ignition (Yellow) wire from the Dash Harness.

Verify that the brown wire has 12VDC only with ignition ON or RUN.

24. Locate the red/white wire and splice the Battery (Red) wire from the Dash Harness. Verify that the red/white wire has 12VDC all time.

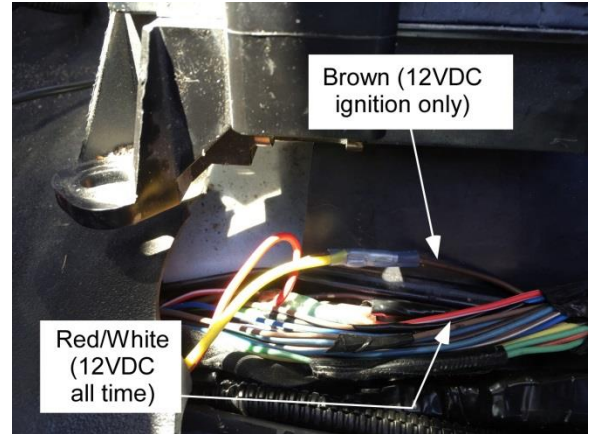


Figure 61. Brown and Red/White wires spliced to Dash Harness.

25. Close cover.
26. Route the Black ring terminal, Yellow/Black ring terminal, and CAN connector under the floor matting to the kick panel.
27. Remove kick panel.
28. Attach the Black and Yellow/Black ring terminals to sheet metal to ground.

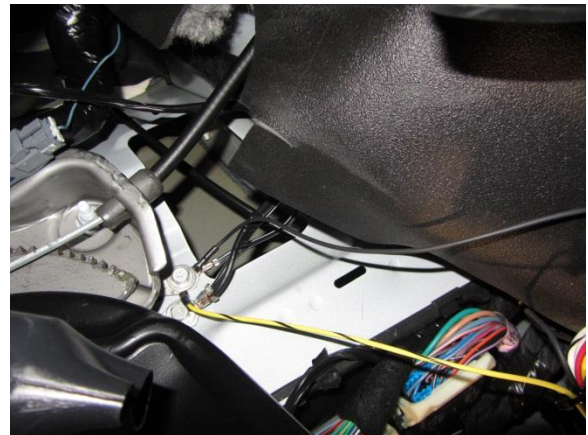


Figure 62. Black and Yellow/Black ring terminal connections.

29. Route the CAN connector to be accessed as necessary.
30. Reinstall kick panel.



Figure 63. CAN connector recommended location.

31. Locate the Driver Interface.
32. Mount the Driver Interface to the dash in an appropriate location.
33. Route the Driver Display harness to the dash harness connector, J26, and connect.
34. Secure all wires under the dash.
35. Reinstall all trim panels.
36. Reinstall driver seat.
37. Under the vehicle (beneath the driver seat), locate the brake ABS actuator. Locate the wiring bundle to the actuator.



Figure 64. ABS actuator, under cab.

38. Locate the Yellow/Black wire in the bundle.



Figure 65. Splicing LS Purple/White wire to OEM Yellow/Black wire.

39. Splice the Yellow/Black wire to the Speed (Purple/White) wire pulled from the External wiring harness. Install heat shrink tubing over the connection.
40. Re-cover and tape up.
41. Locate the Light Blue wire in the OEM Harness, along the driver side frame rail, behind the cab. Verify wire provides 12VDC with brakes applied and 0VDC with brakes not applied.

CAUTION: Do not use the Light Blue wire in the ABS Controller wire bundle.

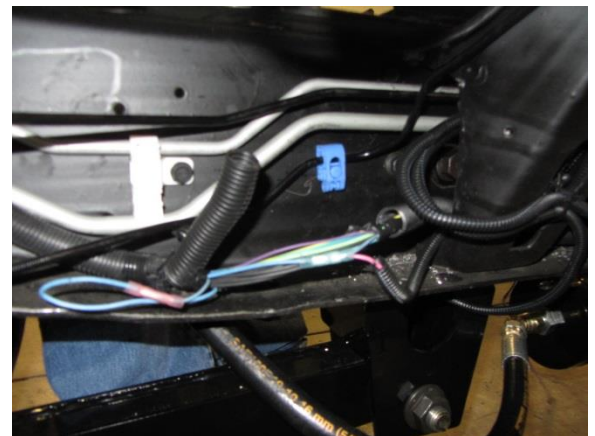


Figure 66. Light Blue wire spliced to Pink/Black wire. OEM Light Blue wire shown near cross member between rear suspension hangers. Wire may be found along driver side frame rail, closer to cab.

42. Splice the Light Blue wire to the Brake (Pink/Black) wire pulled from the External wiring harness. Install heat shrink tubing over the connection.
43. Re-cover and tape up.
44. Locate the branch containing connector J35.
45. Route branch to the steering sensor and connect.

-
46. Secure the harness.
 47. Locate the Red 8ga battery connection branch.
 48. Route branch to the auxiliary battery positive terminal.
 49. Locate the Battery Fuse Lead containing the 80 amp fuse.
 50. Remove the 80 amp fuse.
 51. Crimp the fuse lead to the 8ga battery connection branch blunt end.
 52. Melt the heat shrink on the crimped connection to seal the splice.
 53. Connect to the positive terminal post.

Note: GM uses side mount connections. A replacement terminal connection screw, such as the Solid Brass Battery Bolt Extender LYNX by East Penn, p/n 07050) may be required to attach to the battery.

54. Replace the 80 amp fuse.

Optional Door Electrical Harness Installation:

The optional door harness can be used to remotely activate the system “kneeling” feature in which the suspension automatically lowers to a point slightly less than maximum jounce travel. The door harness can be utilized in two actuation methods.

IMPORTANT: Do not connect positive (12VDC) signal to either the W98 Tan/Blk or W93 Brown wires. Applying positive (12VDC) to either of these wires can result in ECU failure.

A. Single Wire - Ground Signal From Source

Ground is provided to the door harness Brown (W93) wire from a grounding source (e.g. multiplex signal, switch, etc.). If a remote switch is used, it is recommended to use a normally closed (NC) door switch which remains open when the door is closed (or closed when the door is opened). One side of the switch must be connected to a ground source and the other side routed to the door harness. If multiple switches are used, they should be wired in a parallel arrangement with the door harness. Requires single wire routed from source to door harness.

B: Dual Wire – Ground Signal From System

Ground is provided by the suspension system when the Brown (W93) wire is connected to the Tan/Black (W98) wire of the door harness. This arrangement requires a remote switch that is a normally closed (NC) door switch which remains open when the door is closed (or closed when the door is opened). One side of the switch needs to be connected to the door harness Brown (W93) wire and the other side to the door harness Tan/Black (W98) wire. Requires two wires routed from switch to door harness.

1. Door harness wires are located on the main external wiring harness as a branch near the power module.
2. Unwrap the door harness wires.
3. Based on the selected actuation method above, strip the end(s) of the door harness blunt wire(s) and connect the end(s) to the signal source using a heat shrinkable butt-splice. Crimp the connection(s) accordingly and apply heat to the insulator to seal the connection(s).

System Preparation

Initial System Fill

1. Install the wheels and tires. Torque wheel nuts to OEM specifications.
2. Verify that the front wheels are steered straight ahead.
3. Lower the vehicle to the ground and remove any jack stands from under the vehicle. The suspension should be in the kneeled position.
4. Locate the container of Silicone Fluid.
5. Remove the breather cap from the Power Module reservoir.
6. Fill the reservoir approximately 2/3 full.
7. Turn the ignition key to "Run" and ensure that the LiquidSpring driver display LEDs light up and that the red "Warning" LED is not lit. If the red "Warning" LED is lit, proceed to the Trouble Shooting Section.

WARNING: Do not run vehicle in an enclosed building without adequate ventilation or without ducting exhaust fumes outside. Operation of a vehicle inside an enclosed building can lead to serious injury or death.

8. Press and release the Red ON/OFF button on the driver display. All LEDs on the driver display should go out.
9. Press and release the Red ON/OFF button again. The LEDs on the driver display should all flash and then only the four yellow arrow LEDs, one green ride mode indicator LED, and one green ride height indicator LED should remain lit.
10. The green ride height indicator LED should indicate "Low" and begin flashing as the pump/motor starts. If pump/motor does not start, check Trouble Shooting Electrical Section.
11. Monitor the fluid level in the reservoir. If the level drops below 1/4 of the tank, press and release the Red ON/OFF button to shut off the system, refill the reservoir, and turn the system back on by pressing the Red ON/OFF button.
12. If the suspension system does not begin to rise to a preset ride height after 3 minutes, stop the system and check the following first and then repeat this step:
 - a. Check for any fluid leaks.
 - b. Check that the hoses are properly connected.

- c. Completely depressurize the system. See Depressurizing the System section, under System Operation

13. After the suspension system stops leveling, check the fluid level in the reservoir. If low, fill to the indicated line.

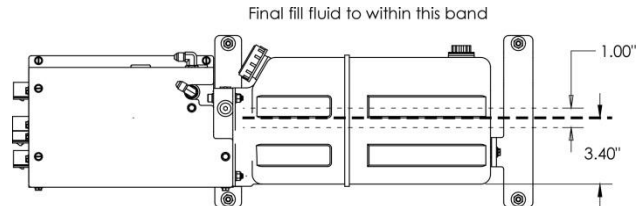


Figure 67. Final fill fluid level.

Bleeding the System

1. Verify system is turned OFF by either pressing the ON/OFF button on the driver interface until the lights are turned off or turning the ignition off.
2. Locate 3/16" ID PVC Tubing (not included with kit). Note: Alternatively, a bleed kit similar to the Actron 7840 Bleed Kit can be used.
3. Attach the PVC tubing to one of the upper bleed screws on the Left Hand Secondary Volume Assembly and place the other end in a bucket.

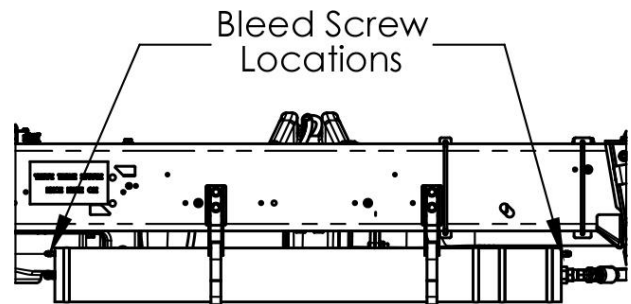


Figure 68. Bleed screw locations.

4. Open the bleed screw slightly.
5. After air bubbles are no longer present, close the bleed screw and torque to **13-18 ft-lbs.**
6. Repeat with remaining bleed screws. Note: the system may need to be powered on and allowed to re-pressurize.
7. Repeat with other side.

Calibrating the System

IMPORTANT: Proper calibration of the system must be conducted with the vehicle loaded to the as delivered condition with body installed. For calibration on an empty chassis cab, LiquidSpring recommends weight be added to

the frame approximately equal to the planned body to allow for proper bushing deflections.

Note: The LiquidSpring Calibration routine will automatically determine maximum and minimum suspension ride height. Based on those ride heights, the system will determine the correct normal design ride height. The calibration system will also calibrate the steering sensor.

1. Verify that the front wheels are steered straight ahead.
2. Lower the vehicle to the ground and remove any jack stands and any other obstructions from under the vehicle.
3. To begin the calibration, turn the ignition key to "Run" and ensure that the LiquidSpring driver display lights up and that the red Error light is not blinking.

WARNING: Do not run vehicle in an enclosed building without adequate ventilation or without ducting exhaust fumes outside. Operation of a vehicle inside an enclosed building can lead to serious injury or death.

4. Press and release the Red ON/OFF button on the driver display. All lights on the driver display should go out.
5. Press and release the Red ON/OFF button a second time. The lights on the driver display should all flash then only show the four yellow arrow lights, one green ride mode indicator, and one green ride height indicator.
6. Press and hold both Ride Height Adjustment Buttons simultaneously until the SPORT, COMFORT, HIGH, and LOW green LED's begin to flash. The suspension system will begin to rise to the full high position, and then lower to the full lowered position.
7. After the system completes the calibration routine, the suspension will return to the original ride height.
8. Turn off the ignition for at least 3 minutes. Note: The suspension system will not use the calibrated ride height settings until power has been cycled.

Note: Pressing the red ON/OFF button on the driver display does not cycle power to the LiquidSpring suspension system, but only will enable/disable the system.

9. Turn the ignition back to Run, then press the Red ON/OFF button twice and verify the suspension system moves to the new and correct ride height.
10. Calibration is now completed.

Post Installation Welding

WARNING: Prior to any chassis welding conducted after the installation of the LiquidSpring suspension system, disconnect cables from battery, disconnect ECU Header connectors (see below), and Power Module ground connection (see below).

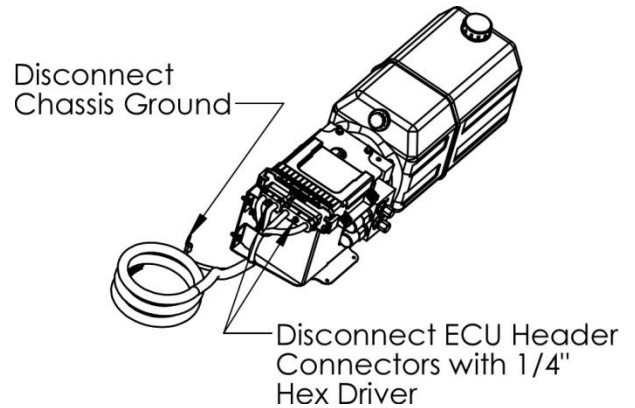
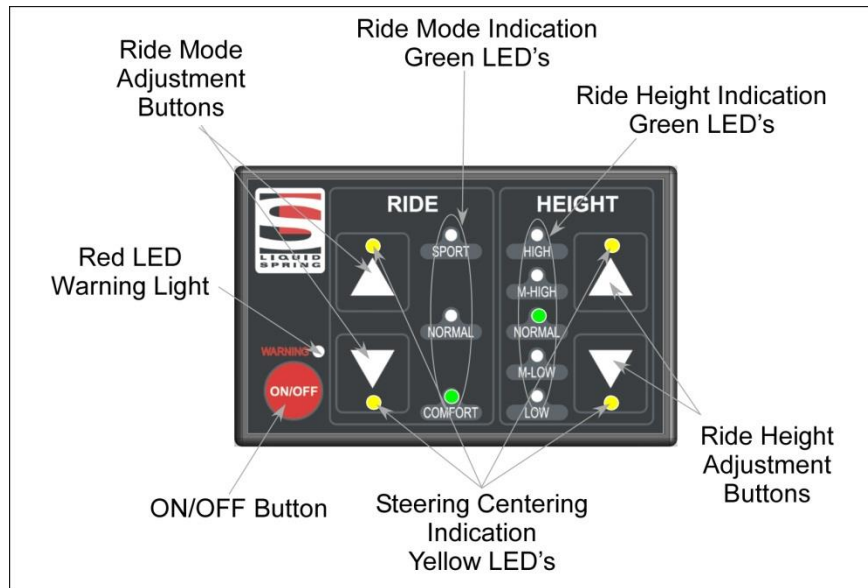


Figure 69. ECU disconnects prior to welding on chassis.

System Operation



System Start Up:

- In most instances, the suspension system can be left alone to operate automatically.
- After startup, all the indicator lights will flash on for 1-2 seconds, and then the Green Ride Height Indication LED and Green Ride Mode Indication LED will light to show the current Ride Mode and Ride Height.
- The four yellow LED's will light up if the steering wheel is approximately 10°-20° each side of straight ahead, but will not light up when steering wheel exceeds 20° from center. If the vehicle is steered straight ahead and the four yellow LED's are not lit (and the red warning LED is not lit) see Calibrating the Steering Sensor Only.
- When the steering wheel is turned more than 20° off center, the four Yellow Steering Centering Indication LED will not be lit.

ON/OFF Button:

Pressing the ON/OFF button will enable/disable the suspension. When the suspension is ON, relevant LED's are lit up. When the suspension is OFF, none of the LED's are lit. It is recommended to leave the suspension ON at all times unless the vehicle or suspension is being serviced.

IMPORTANT: After turning the vehicle ignition off, the suspension system will remain powered for 1 hour before shutting off.

Warning Light:

If the Red LED warning light is continuously illuminated along with one or more of the other indicator lights, please refer to the **Troubleshooting Section** on page 41.

Ride Mode Adjustment:

Press the UP/DOWN arrow buttons to change the ride mode between SPORT, NORMAL, and COMFORT. The Green indicator light will show the set mode.

- **Comfort Mode** provides a smooth, soft ride. Use for normal city and highway driving.
- **Sport Mode** provides more “feel” or response to the road conditions. Use where road conditions or personal preference demand more control.
- **Normal Mode** is a balance between Comfort and Sport. Use where more control than Comfort is desired, but better ride than Sport.

The setting can be changed at any time. Based on road conditions, steering wheel angle, and the vehicle speed, the system automatically adjusts to provide the best handling while providing a smooth ride. All three settings will feel similar on a smooth road.

Ride Height Adjustment:

Press the UP/DOWN arrow buttons to change ride height from NORMAL to HIGH (body up) or LOW (body down).

- A solid green LED will indicate the selected height. A flashing green LED will indicate the current height and that height adjustment is occurring. When a single solid green LED is lit, the selected height has been achieved.

- Two solid green LEDs will be lit if the current height is not the selected height and height adjustment is not occurring.
- If LOW or HIGH heights are selected while the vehicle is traveling at less than 10 mph or stopped, the suspension height is either lowered or raised.
- If LOW or HIGH heights are selected while the vehicle is traveling at greater than 10 mph, the suspension will ignore the selected height and remain in NORMAL height unless the vehicle speed goes below 10 mph within 2 minutes of selecting the height. In this instance, the NORMAL height green LED will flash and the selected height green LED will be lit solid until the speed goes below 10 mph within 2 minutes of selecting the height. If the vehicle speed doesn't go below 10mph within the 2 minute period, the suspension will remain in NORMAL height indicated by only the NORMAL height green LED lit solid.
- If LOW height is selected and the ignition is turned off before LOW height is achieved, the system will continue to lower to LOW height. When LOW height is selected the system will monitor and maintain the kneeled position by only lowering as needed for 1 hour after the ignition is turned off.
- If HIGH height is selected and the ignition is turned off before HIGH height is achieved, the system will stop adjusting ride height. When HIGH height is selected the system will monitor and maintain the current position by only lowering as needed for 1 hour after the ignition is turned off.
- The door switch function (if equipped) is disabled when the driver display LOW or HIGH height is selected before the door is opened on vehicles equipped with a door switch for kneeling.

IMPORTANT: While parked for an extended time with the vehicle and/or suspension system turned off, suspension ride will change with temperature change. Increases in ambient temperature or parking in direct sunlight can cause the suspension ride height to increase. As temperature lowers, the suspension ride height can decrease.

Depressurizing the System

1. Turn the ignition key to "Run" and ensure that the LiquidSpring driver display LEDs light up and that the red "Warning" LED is not lit. If the red "Warning" LED is lit, proceed to the Trouble Shooting Section.

WARNING: Do not run vehicle in an enclosed building without adequate ventilation or without ducting exhaust fumes outside. Operation of a vehicle inside an enclosed building can lead to serious injury or death.

1. Press and release the Red ON/OFF button on the driver display. All LEDs on the driver display should go out.
2. Press and release the Red ON/OFF button again. The LEDs on the driver display should all flash and then only the four yellow arrow LEDs, one green ride mode indicator LED, and one green ride height indicator LED should remain lit.
3. Press and release the HEIGHT DOWN arrow button to lower the vehicle to the LOW height.
4. Press and hold the HEIGHT DOWN arrow button for approximately 2 minutes.
5. Release the HEIGHT DOWN arrow button.
6. Press and release the ON/OFF button to disable the system.
7. Turn off the vehicle ignition.

If any of the hydraulic connected components is to be removed and serviced, it is recommended to also follow the following steps:

8. Locate 3/16" ID PVC Tubing. Note: Alternatively, a bleed kit similar to the Actron 7840 Bleed Kit can be used.
9. Attach the PVC tubing to one of the upper bleed screws on the Left Hand Secondary Volume Assembly and place the other end in a bucket.

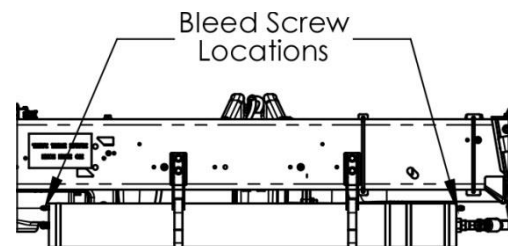


Figure 70. Bleed screw locations.

10. Open the bleed screw slightly to relieve any residual pressure.

-
11. After pressure is relieved, close the bleed screw and torque to 13-18 ft-lbs.

Notes:

- Jacking up the chassis of a lowered, depressurized chassis will cause a slight vacuum in the system and minimize fluid loss while disconnecting hoses.
- For service of non-hydraulic connected suspension components, the suspension system can be first raised to the HIGH height, appropriate jack stands placed under the chassis, then depressurized as listed above lowering the chassis onto the jack stands.

Calibrating the Steering Sensor Only

Note: The yellow lights only light up when the steering sensor indicates the center location. They will not be lit outside of 10°-20° off center.

IMPORTANT: The LiquidSpring CLASS® system includes an automatic self-centering routine. In conditions such as driving on highway with significant side wind, the yellow lights may temporarily not be lit when the steering wheel is exactly centered. Rotate slowly from center to full steering stop, then repeat the opposite direction. If the yellow lights momentarily light up during the travel in one or the other direction, the system is operating normally and the steering sensor does not need to be manually re-centered. Continue operating normally.

If the yellow lights do not light up at all during turning the steering wheel, following the instructions below.

1. Verify that the front wheels are steered straight ahead.
2. To begin the calibration, turn the ignition key to “Run” and ensure that the LiquidSpring driver display lights up and that the red “Warning” LED is not lit or flashing.

WARNING: Do not run vehicle in an enclosed building without adequate ventilation or without ducting exhaust fumes outside. Operation of a vehicle inside an enclosed building can lead to serious injury or death.

3. Press and release the Red ON/OFF button on the driver display. All LEDs on the driver display should go out.
4. Press and release the Red ON/OFF button again. The LEDs on the driver display should all flash and then only the four yellow arrow LEDs, one green ride mode indicator LED, and one green ride height indicator LED should remain lit.
5. Press and hold both Ride Height Adjustment Buttons simultaneously until the SPORT, COMFORT, HIGH, and LOW green LED's begin to flash.

6. As soon as the four green LED's begin to flash, press the ON/OFF button to stop the process.
7. Verify that the four yellow arrow LED's are lit.
8. Steering calibration is completed.

Troubleshooting

The LiquidSpring CLASS® system includes on-board diagnostics to assist in pin-pointing potential issues. When a fault in the system occurs, the red warning light on the Drivers Interface will light along with one or more of the other lights on the interface.

Driver Interface Lights	Condition	Cause	Correction
Warning + RIDE: SPORT	Battery Voltage in excess of 16VDC	Vehicle charging system providing incorrect voltage.	Inspect and replace as necessary.
		LiquidSpring system not connected to 12VDC electrical system	Inspect and replace as necessary
Warning + RIDE: NORMAL	Pump Motor runs in excess of 3 minutes	See <i>Issues with Vehicle Raising/Pump Section</i>	See <i>Issues with Vehicle Raising/Pump Section</i>
Warning + RIDE: COMFORT	Battery Voltage below 9 VDC	Vehicle charging system providing incorrect voltage	Inspect and replace as necessary
		80A fuse blown / Loss of battery voltage on circuit W25	Inspect / Repair Replace as necessary
Warning + HEIGHT: HIGH	Issue with Right Hand Height Sensor	See <i>Issues with Height Sensors Section</i>	See <i>Issues with Height Sensors Section</i>
Warning + HEIGHT: NORMAL	System kneels in excess of 3 minutes without suspension movement	See <i>Issues with Vehicle Lowering/Dump Valve Section</i>	See <i>Issues with Vehicle Lowering/Dump Valve Section</i>
Warning + HEIGHT: LOW	Issue with Left Hand Height Sensor	See <i>Issues with Height Sensors Section</i>	See <i>Issues with Height Sensors Section</i>

Issues with Vehicle Raising/Pump

Condition	Cause	Correction
Vehicle Leveled, Pump continues to run	Pump motor shorted out.	Contact LiquidSpring for further instructions.
	Software issue	Turn off ignition, wait 30 seconds, restart vehicle.
	Excessive noise in height sensor	See <i>Issues with Height Sensors</i>
Vehicle Not Leveled (or Raised), Pump runs	Reservoir fluid level low	Fill reservoir to specified level.
	Hydraulic leak in system	Check for fluid leaks and repair or replace.
	Vehicle overloaded	Check vehicle loading and correct.
	Air in pump	Check fluid level in reservoir and fill accordingly. Fully depressurize system and restart leveling.
	Internal leak in power module	Replace power module.
	Height sensor error	See <i>Issues with Height Sensors</i>
Vehicle Not Leveled (or Raised), Pump does not run	System not turned on.	Turn system on.
	Blown fuse	Check system fuses
	Loss of electrical power	Check wiring between power module and battery.
Pump runs for short time then stops	Motor controller over temperature	Contact LiquidSpring for further instructions.
Pump runs intermittently	Loose connector or wiring	Check wiring harness connections and battery connections. Repair as necessary.

Issues with Vehicle Lowering/Dump Valve

Condition	Cause	Correction
Vehicle does not lower (kneel).	System not turned on	Turn system on
	Blown fuse	Check system fuses and replace as necessary
	Obstacle under vehicle frame	Remove obstacle
	Wiring harness disconnected	Check wiring harness connections and reconnect
	Loss of electrical power	Check wiring between power module and battery
	Power module filters plugged	Contact LiquidSpring for further instructions
	Internal power module blockage	Contact LiquidSpring for further instructions
Vehicle slow lowering (kneeling)	Partial internal power module blockage	Contact LiquidSpring for further instructions

Issues with One Corner Not Leveling Properly

Condition	Cause	Correction
One side will not raise or lower	Internal power module blockage	Contact LiquidSpring for further instructions
	Low voltage	Check battery voltage.
	Wiring harness disconnected	Check wiring harness connections and reconnect
	Obstacle under vehicle frame	Remove obstacle
	Power module filters plugged	Contact LiquidSpring for further instructions
	Height sensor error	See <i>Issues with Height Sensors</i>
One corner raises and lowers slower than other corners	Internal power module blockage	Contact LiquidSpring for further instructions
	Filter partially clogged	Contact LiquidSpring for further instructions

Issues with Height Sensors

Condition	Cause	Correction
Vehicle or corner stops leveling at incorrect height	Damaged height sensor and/or linkage	Inspect height sensor components. Replace as necessary.
	Incorrect calibration	Recalibrate vehicle – see System Operation section.
	Incorrect height sensor installation	Inspect height sensor components and correct.
Corner height where leveling stops is inconsistent	Sensor or Linkage loose	Inspect installation of height sensor and linkages and tighten if necessary
	Loose connector / wire	Inspect wiring between sensor and power module for loose connection
Vehicle will not level - no height sensor signal	Height Sensor wiring shorted, broken, or disconnected	Inspect wiring between sensor and power module.
	Malfunction in Sensor	Replace sensor.
No Height Sensor Signal change while driving	Linkage broken/disconnected	Inspect installation of height sensor and linkages. Correct and/or replace.

Issues with Ride/Handling

Condition	Cause	Correction
Vehicle rolls side to side excessively	System inactive (Drivers interface dark)	Turn system on (press On/Off button)
	No electrical power to system	Inspect and replace as necessary
	Strut bushings worn	Inspect and replace as necessary
	Control arm bushings worn	Inspect and replace as necessary
	Sway bar bushings worn	Inspect and replace as necessary
	Strut mounting loose	Inspect and replace as necessary
	Rate Valve wiring shorted, broken, or disconnected	Inspect wiring and correct/replace as necessary.
	Voltage to Rate Valve solenoid too low	Check battery voltage.
	Rate Valve Poppet Jammed open	Contact LiquidSpring for further instructions
	No vehicle speed signal	See <i>Issues with Vehicle Speed Signal</i> section.
Excessive stiffness when on flat, straight road	Short to Rate Valve	Check wiring between rate valve (on secondary volume) and power module for signs of shorts. Replace as necessary.
	Wiring to Rate Valve incorrect	Inspect wiring and correct as necessary

Issues with Steering Sensor

Condition	Cause	Correction
No steering signal (reduced roll control when cornering)	Steering sensor wiring broke or incorrect.	Inspect wiring to steering sensor and correct as necessary.
	Steering sensor malfunction	Replace sensor
	Steering sensor not installed correctly	Inspect installation and correct as necessary
Yellow lights on driver display not lit when steered straight ahead.	Zero point of steering sensor incorrect.	See <i>Calibrating the Steering Sensor Only</i> .
Intermittent steering sensor signal	Loose connector / wire	Check wiring between Steering sensor and Power module for loose connection.

Issues with Vehicle Speed Signal

Condition	Cause	Correction
System leveling excessively while driving.	Speed Sensor wiring shorted, broken, or disconnected	Inspect wiring and repair/replace as necessary
	Speed signal malfunction	Replace OEM speed sensor. See OEM service manual.
Intermittent speed sensor signal	Loose connector / wire	Check wiring between Speed sensor and Power module for loose connection.

Issues with Vehicle Brake Signal

Condition	Cause	Correction
Vehicle will not level	Brake signal wire not correctly tapped.	Inspect wiring and repair/replace as necessary.
	Brake switch malfunction	Replace OEM speed sensor. See OEM service manual.
Intermittent leveling	Loose connector / wire	Inspect wiring and repair/replace as necessary.

Issues with Door Switch

Condition	Cause	Correction
Vehicle will not kneel when rear door opened	Short or break in wiring between door switch and power module.	Inspect wiring and repair/replace as necessary.
	Door switch malfunction	Inspect door switch and repair/replace as necessary
Vehicle kneels whenever speed below 5mph	Short or break in wiring between door switch and power module.	Inspect wiring and repair/replace as necessary.
	Door Switch out of adjustment	Check installation of door switch and adjust as necessary
	Door switch malfunction	Inspect and replace per body builder instructions.
Intermittent door switch signal	Loose connector / wire	Inspect wiring and repair/replace as necessary.

Issues with Vehicle Ignition Signal

Condition	Cause	Correction
System does not turn on (no leveling or stiffness control)	No ignition signal to controller or driver interface	Inspect wiring and repair/replace as necessary.
	Ignition "sensor" malfunction	Inspect and replace per OEM service manual.
System does not turn off once ignition switched off	Signal side short to battery	Inspect wiring and repair/replace as necessary.
	Ignition "sensor" malfunction	Inspect and replace per OEM service manual.
System intermittently works	Loose connector / wire	Inspect wiring and repair/replace as necessary.

Issues with Vehicle Park Signal

Condition	Cause	Correction
System will start up but won't level when parked	No park signal to controller	Inspect wiring and repair/replace as necessary.
	Park sensor malfunction	Inspect and replace per OEM service manual.
System levels when stopped and not in park	Park signal always on	Inspect wiring and repair/replace as necessary.
	Park sensor malfunction	Inspect and replace per OEM service manual.
Intermittent leveling when stopped in or out of park	Loose connector / wire	Inspect wiring and repair/replace as necessary.

Issues with Power Module

Condition	Cause	Correction
Pump exhibits high pitch whine immediately after pump stops or when vehicle lowering	The Check Valve is stuck open	Replace Power Module
Pump running under heavy load and leveling slow	The Check Valve is only partially open	Replace Power Module
Pump running under heavy load and no leveling	The Check valve is stuck closed	Replace Power Module
Hydraulic fluid leaking from Power Module	O-ring failure	Replace O-ring
	Manifold cracked	Replace Power Module
	Fitting loose	Tighten fittings
	Valve loose	Tighten valves to correct torque
	Bolts between manifolds loose/broken	Replace and /or tighten bolts to correct torque
	Hydraulic line loose	Tighten hydraulic line correctly
	Bolts between reservoir and manifold loose/broken	Replace and/or tighten bolts to required torque
	Broken / cracked reservoir	Replace reservoir

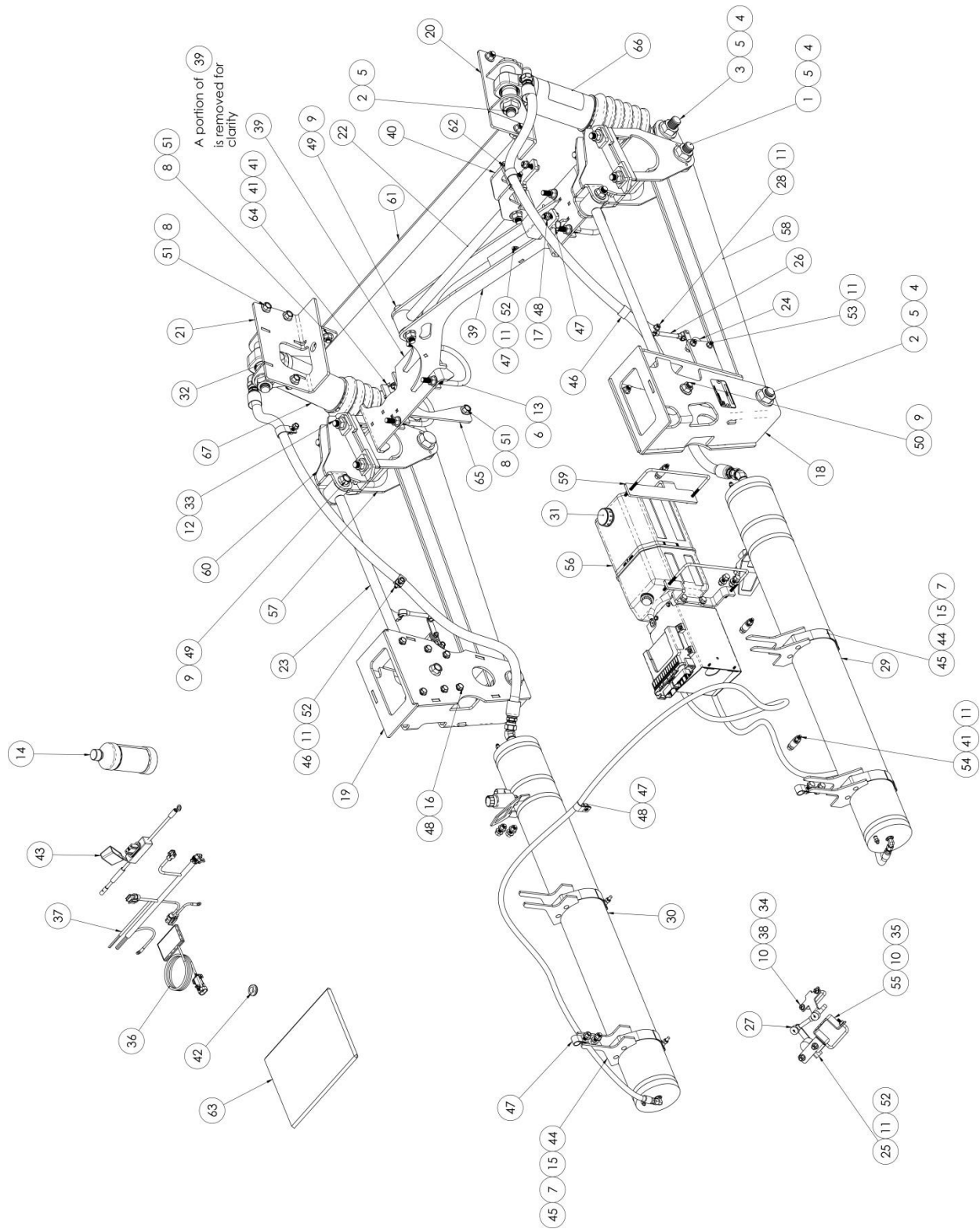
Issues with Strut Assembly

Condition	Cause	Correction
Hydraulic Leak	Weld failure between cylinder and end	Replace strut
	Cylinder fracture	Replace strut
	Threads stripped between cylinder and gland	Replace strut
	Seals worn out	Replace strut
	Rod severely scratched or dented	Replace strut
	Fitting loose	Tighten or replace fittings
	Hose failure	Replace failed hose
	Hose cut	Replace failed hose
Rod broken at bushing housing	Weld failure	Replace strut
Rod doesn't move freely in/out cylinder	Piston jammed in cylinder	Replace strut
Rod moves very easily in/out cylinder	Piston broken therefore no damping	Replace strut
Reduced damping level	Damping components broken/worn out	Replace strut
Strut upper mount not securely attached to frame or Strut	Bolts attaching bracket to frame broken / came out	Replace bolts and tighten to required torque
	Bolt attaching strut to bracket broke / came out	Replace bolts and tighten to required torque
	Weld Failure	Replace strut upper mount
	Structural failure	Replace strut upper mount
Strut lower mount not securely attached to axle or strut	Bolts attaching bracket to axle broken / came out	Replace bolts and tighten to required torque
	Bolt attaching strut to bracket broke / came out	Replace bolts and tighten to required torque
	Weld Failure	Replace strut lower mount
	Structural failure	Replace strut lower mount

Issues with Secondary Volume Assembly

Condition	Cause	Correction
Hydraulic Leak	Weld failure between tube and end	Replace secondary volume welded assembly
	Weld failure between tube and manifold	Replace secondary volume welded assembly
	Cylinder fracture	Replace secondary volume welded assembly
	Bleed screw loose	Tighten bleed screws to appropriate torque
	Fitting loose	Tighten all fittings
	Hose failure	Replace failed hose
	Hose cut	Replace failed hose
loose or no longer attached	Bolts attaching bracket to frame broken / came out	Replace bolts and tighten to required torque
	Bolt attaching volumes to bracket broke / came out	Replace bolts and tighten to required torque
	Weld Failure	Replace brackets
	Structural failure	Replace brackets

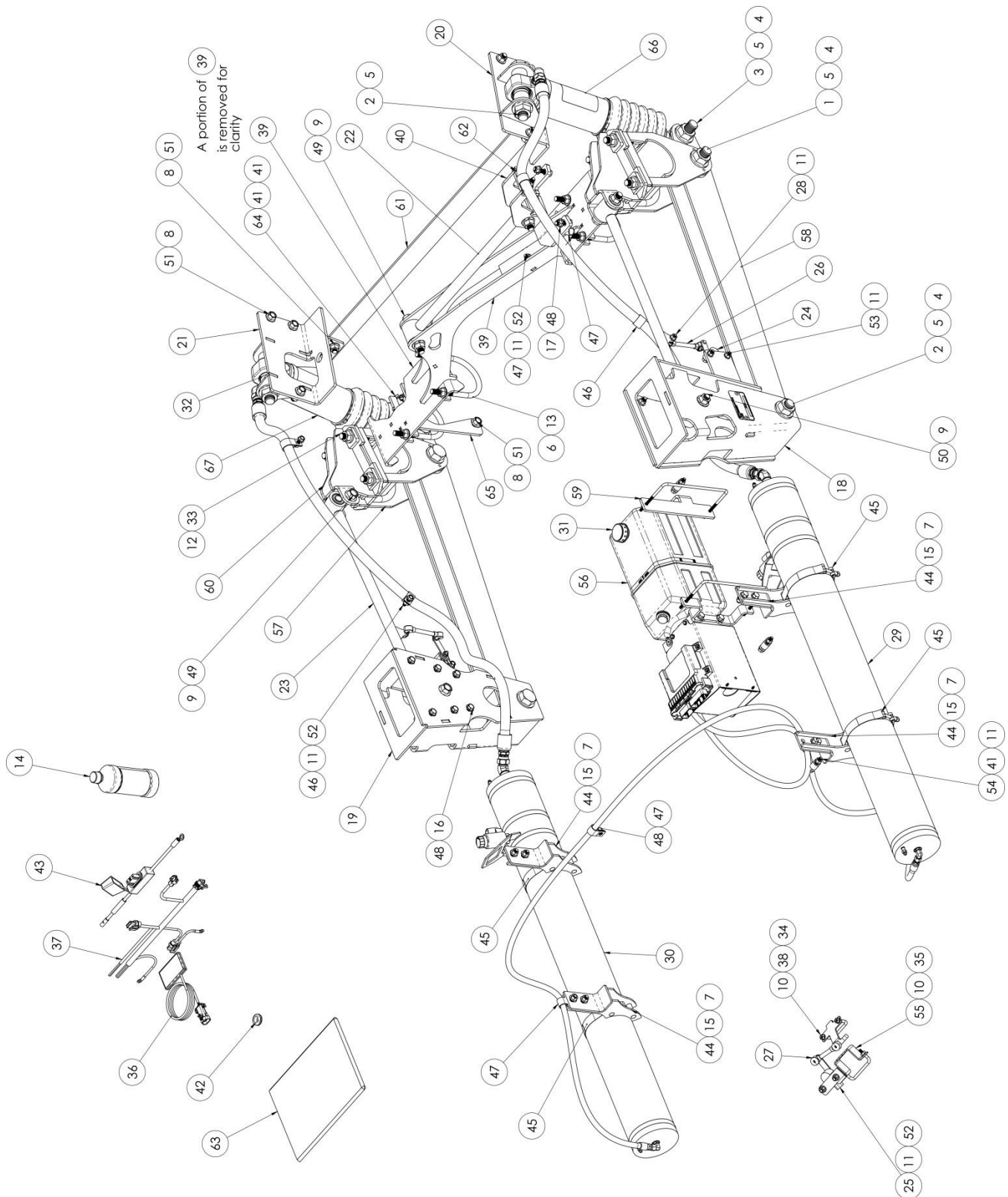
Part Identification:
DS96GM-AR



DS96GM-AR

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10003-003	HB 1.000-8x6.000, Gr. 8	35	1	10669-005	U-Bolt, 1/4-20 x 3.00 x 1.375 Gr 5
2	4	10003-004	HB 1.000-8x6.500, Gr. 8	36	1	10680-001	Driver Interface
3	2	10003-005	HCS 1.000-8 x 4.500	37	1	10704-006	Wiring Harness, Dash, GM G
4	8	10006-004	HFW 1.000	38	1	10733-003	Pitman Arm Bracket
5	8	10012-003	LFN 1-8, Gr G, Z Top Lock	39	1	10762-004	Bridge, Track Rod Mount
6	6	10012-004	LFN 1/2-20, Gr. G	40	1	10789-006	Track Rod Frame Mount
7	8	10012-005	LFN 3/8-16, Gr G	41	5	10800-004	Tube, .69OD x .42ID x .625L Z
8	11	10012-007	LFN 1/2-13, Gr. G	42	1	10805-005	Grommet, .63ID x 1.13OD x .38T
9	6	10012-008	LFN 5/8-11 Gr G	43	1	10815-001	Battery Fused Lead
10	4	10012-009	LFN 1/4-20, Gr. G	44	4	10830-013	Volume Mount
11	14	10012-010	LFN 5/16-18, Gr. G	45	4	10843-003	T-Bolt Clamp, Range 4.88-5.50
12	8	10012-013	LFN 5/8-18, Gr. G	46	4	10855-002	Vinyl-Coated Loop Clamp, 1" ID
13	3	10383-002	U-Bolt 1/2-20 x 6.00 Gr 8	47	5	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
14	1	10474-001	Silicone Oil, 16 oz. Bottle	48	15	10873-002	LFN M10-1.6, CL 10.9
15	8	10501-001	HFB 3/8-16 x 1.000 Gr 8	49	4	10874-375	HFB 5/8-11x3.750, Gr. 8
16	12	10502-001	HFB M10-1.5 x 30 CL 10.9	50	2	10874-600	HFB 5/8-11 x 6", Gr. 8
17	3	10502-002	HFB M10-1.5 x 40 CL 10.9	51	11	10885-125	HFB 1/2-13x1.250, Gr. 8
18	1	10538-003	Hanger, Left Hand	52	5	10886-100	HFB 5/16-18 x 1.000, Gr. 8
19	1	10539-006	Hanger, Right Hand	53	4	10886-125	HFB 5/16-18 x 1.25, Gr. 8
20	1	10564-003	Upper Strut Mount, Left Hand	54	3	10886-175	HFB 5/16-18 x 1.75, Gr 8
21	1	10564-004	Upper Strut Mount, Right Hand	55	1	10904-004	Bracket, Sensor
22	1	10570-003	Asy, Track Rod	56	1	10941-001	Asy, Power Module, DS96GM-A
23	2	10570-004	Asy, Upper Control Arm	57	2	10947-002	Lower Control Arm Mount
24	2	10586-001	Asy, Height Sensor	58	2	10953-002	Lower Control Arm
25	1	10586-002	Asy, Steering Sensor	59	1	10968	Kit, Power Module Mount, Side
26	2	10587-006	Asy, Linkage, 3.938" SS	60	2	10984-001	Upper Control Arm Mount
27	1	10587-007	Asy, Linkage, 2.887" SS	61	1	10988-001	Crossmember Reinforcement
28	2	10591-003	Ball Stud 5/16-18 x 1.75L	62	1	10993-001	Track Rod Mnt Bolt Plate
29	1	10597-029	Asy, Volume, Left Hand	63	1	11000	Kit, Drawing, DS96GM
30	1	10597-030	Asy, Volume, Right Hand	64	1	11008-045	HCS M8-1.25x45, CL 8.8
31	1	10614-001	Cap, Filler/Breather	65	1	11048-001	Bracket, Bridge Orientation
32	8	10640-002	Bearing Spacer, 1.25 x 1.02 x .318	66	1	11057-001	Asy, Strut, Left Hand
33	4	10642-001	U-Bolt 5/8-18 x 7.00 Gr 8	67	1	11057-002	Asy, Strut, Right Hand
34	1	10669-002	U-Bolt, 1/4-20 x 2.438 x 1.375 Gr 2				

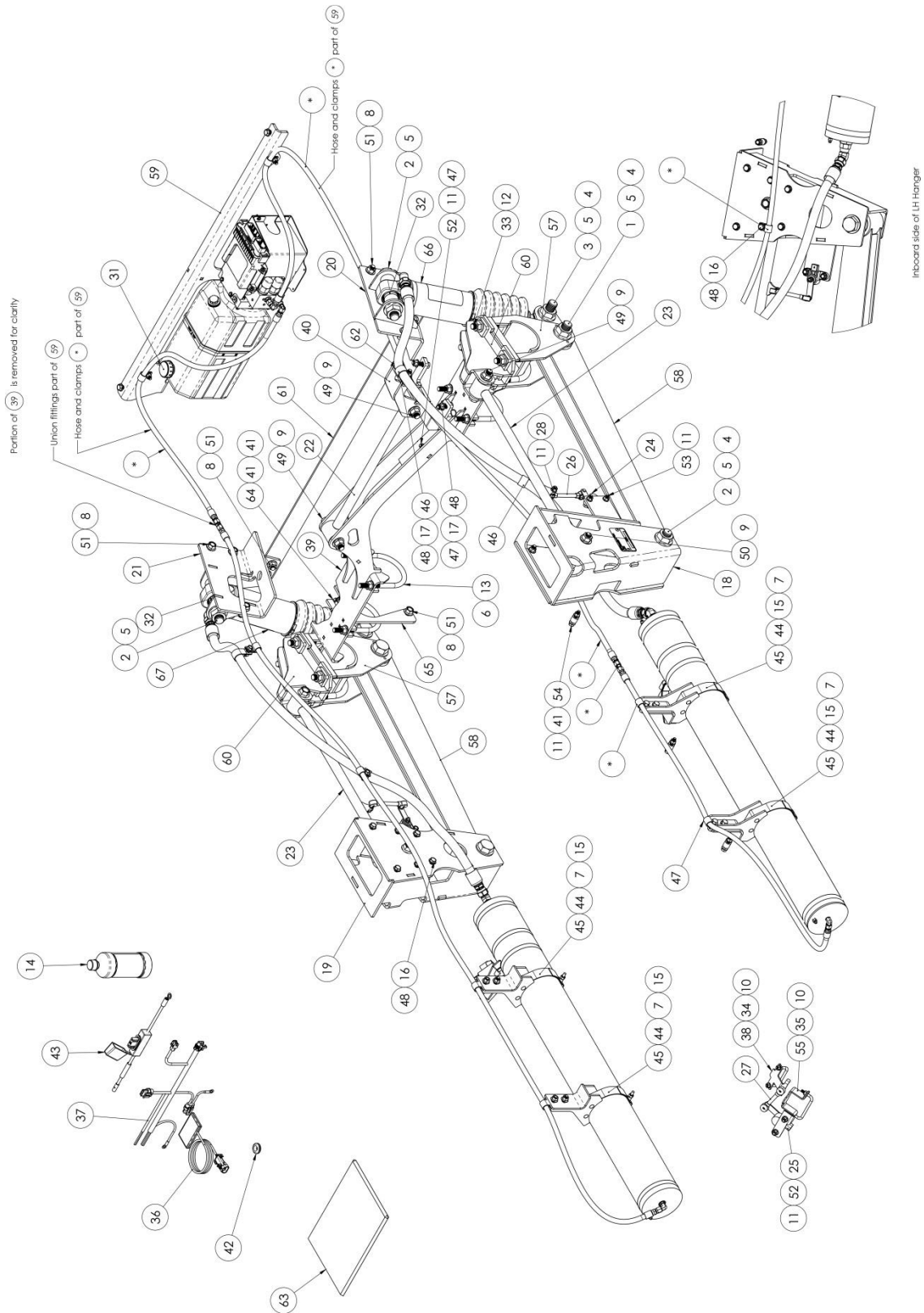
DS96GM-ARC



DS96GM-ARC

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10003-003	HB 1.000-8x6.000, Gr. 8	35	1	10669-005	U-Bolt, 1/4-20 x 3.00 x 1.375 Gr 5
2	4	10003-004	HB 1.000-8x6.500, Gr. 8	36	1	10680-001	Driver Interface
3	2	10003-005	HCS 1.000-8 x 4.500	37	1	10704-006	Wiring Harness, Dash, GM G
4	8	10006-004	HFW 1.000	38	1	10733-003	Pitman Arm Bracket
5	8	10012-003	LFN 1-8, Gr G, Z Top Lock	39	1	10762-004	Bridge, Track Rod Mount
6	6	10012-004	LFN 1/2-20, Gr. G	40	1	10789-006	Track Rod Frame Mount
7	8	10012-005	LFN 3/8-16, Gr G	41	5	10800-004	Tube, .69OD x .42ID x .625L Z
8	11	10012-007	LFN 1/2-13, Gr. G	42	1	10805-005	Grommet, .63ID x 1.13OD x .38T
9	6	10012-008	LFN 5/8-11 Gr G	43	1	10815-001	Battery Fused Lead
10	4	10012-009	LFN 1/4-20, Gr. G	44	4	10830-015	Volume Mount
11	14	10012-010	LFN 5/16-18, Gr. G	45	4	10843-003	T-Bolt Clamp, Range 4.88-5.50
12	8	10012-013	LFN 5/8-18, Gr. G	46	4	10855-002	Vinyl-Coated Loop Clamp, 1" ID
13	3	10383-002	U-Bolt 1/2-20 x 6.00 Gr 8	47	5	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
14	1	10474-001	Silicone Oil, 16 oz. Bottle	48	16	10873-002	LFN M10-1.6, CL 10.9
15	8	10501-001	HFB 3/8-16 x 1.000 Gr 8	49	4	10874-375	HFB 5/8-11x3.750, Gr. 8
16	12	10502-001	HFB M10-1.5 x 30 CL 10.9	50	2	10874-600	HFB 5/8-11 x 6", Gr. 8
17	3	10502-002	HFB M10-1.5 x 40 CL 10.9	51	11	10885-125	HFB 1/2-13x1.250, Gr. 8
18	1	10538-003	Hanger, Left Hand	52	5	10886-100	HFB 5/16-18 x 1.000, Gr. 8
19	1	10539-006	Hanger, Right Hand	53	4	10886-125	HFB 5/16-18 x 1.25, Gr. 8
20	1	10564-003	Upper Strut Mount, Left Hand	54	3	10886-175	HFB 5/16-18 x 1.75, Gr 8
21	1	10564-004	Upper Strut Mount, Right Hand	55	1	10904-004	Bracket, Sensor
22	1	10570-003	Asy, Track Rod	56	1	10941-006	Asy, Power Module, DS96GM-ARC
23	2	10570-004	Asy, Upper Control Arm	57	2	10947-002	Lower Control Arm Mount
24	2	10586-001	Asy, Height Sensor	58	2	10953-002	Lower Control Arm
25	1	10586-002	Asy, Steering Sensor	59	1	10968	Kit, Power Module Mount, Side
26	2	10587-006	Asy, Linkage, 3.938" SS	60	2	10984-001	Upper Control Arm Mount
27	1	10587-007	Asy, Linkage, 2.887" SS	61	1	10988-001	Crossmember Reinforcement
28	2	10591-003	Ball Stud 5/16-18 x 1.75L	62	1	10993-001	Track Rod Mnt Bolt Plate
29	1	10597-029	Asy, Volume, Left Hand	63	1	11000	Kit, Drawing, DS96GM
30	1	10597-030	Asy, Volume, Right Hand	64	1	11008-045	HCS M8-1.25x45, CL 8.8
31	1	10614-001	Cap, Filler/Breather	65	1	11048-001	Bracket, Bridge Orientation
32	8	10640-002	Bearing Spacer, 1.25 x 1.02 x .318	66	1	11057-001	Asy, Strut, Left Hand
33	4	10642-001	U-Bolt 5/8-18 x 7.00 Gr 8	67	1	11057-002	Asy, Strut, Right Hand
34	1	10669-002	U-Bolt, 1/4-20 x 2.438 x 1.375 Gr 2				

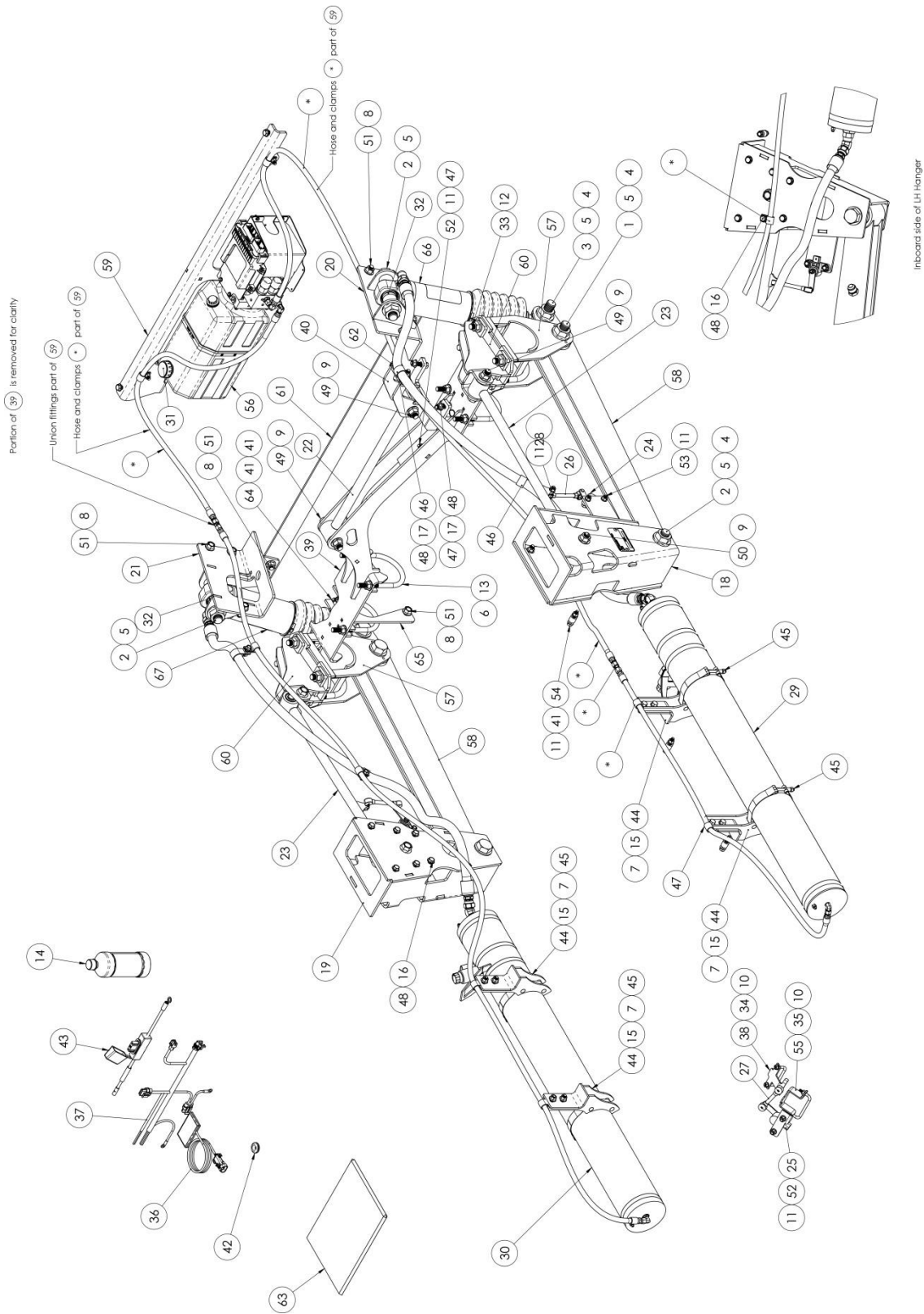
DS96GM-AM



DS96GM-AM

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10003-003	HB 1.000-8x6.000, Gr. 8	35	1	10669-005	U-Bolt, 1/4-20 x 3.00 x 1.375 Gr 5
2	4	10003-004	HB 1.000-8x6.500, Gr. 8	36	1	10680-001	Driver Interface
3	2	10003-005	HCS 1.000-8 x 4.500	37	1	10704-006	Wiring Harness, Dash, GM G
4	8	10006-004	HFW 1.000	38	1	10733-003	Pitman Arm Bracket
5	8	10012-003	LFN 1-8, Gr G, Z Top Lock	39	1	10762-004	Bridge, Track Rod Mount
6	6	10012-004	LFN 1/2-20, Gr. G	40	1	10789-006	Track Rod Frame Mount
7	8	10012-005	LFN 3/8-16, Gr G	41	5	10800-004	Tube, .69OD x .42ID x .625L Z
8	11	10012-007	LFN 1/2-13, Gr. G	42	1	10805-005	Grommet, .63ID x 1.13OD x .38T
9	6	10012-008	LFN 5/8-11 Gr G	43	1	10815-001	Battery Fused Lead
10	4	10012-009	LFN 1/4-20, Gr. G	44	4	10830-013	Volume Mount
11	14	10012-010	LFN 5/16-18, Gr. G	45	4	10843-003	T-Bolt Clamp, Range 4.88-5.50
12	8	10012-013	LFN 5/8-18, Gr. G	46	4	10855-002	Vinyl-Coated Loop Clamp, 1" ID
13	3	10383-002	U-Bolt 1/2-20 x 6.00 Gr 8	47	5	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
14	1	10474-001	Silicone Oil, 16 oz. Bottle	48	15	10873-002	LFN M10-1.6, CL 10.9
15	8	10501-001	HFB 3/8-16 x 1.000 Gr 8	49	4	10874-375	HFB 5/8-11x3.750, Gr. 8
16	16	10502-001	HFB M10-1.5 x 30 CL 10.9	50	2	10874-600	HFB 5/8-11 x 6", Gr. 8
17	3	10502-002	HFB M10-1.5 x 40 CL 10.9	51	11	10885-125	HFB 1/2-13x1.250, Gr. 8
18	1	10538-003	Hanger, Left Hand	52	5	10886-100	HFB 5/16-18 x 1.000, Gr. 8
19	1	10539-006	Hanger, Right Hand	53	4	10886-125	HFB 5/16-18 x 1.25, Gr. 8
20	1	10564-003	Upper Strut Mount, Left Hand	54	3	10886-175	HFB 5/16-18 x 1.75, Gr 8
21	1	10564-004	Upper Strut Mount, Right Hand	55	1	10904-004	Bracket, Sensor
22	1	10570-003	Asy, Track Rod	56	1	10941-001	Asy, Power Module, DS96GM-A
23	2	10570-004	Asy, Upper Control Arm	57	2	10947-002	Lower Control Arm Mount
24	2	10586-001	Asy, Height Sensor	58	2	10953-002	Lower Control Arm
25	1	10586-002	Asy, Steering Sensor	59	1	10969	Kit, Power Module Mount, Rear
26	2	10587-006	Asy, Linkage, 3.938" SS	60	2	10984-001	Upper Control Arm Mount
27	1	10587-007	Asy, Linkage, 2.887" SS	61	1	10988-001	Crossmember Reinforcement
28	2	10591-003	Ball Stud 5/16-18 x 1.75L	62	1	10993-001	Track Rod Mnt Bolt Plate
29	1	10597-029	Asy, Volume, Left Hand	63	1	11000	Kit, Drawing, DS96GM
30	1	10597-030	Asy, Volume, Right Hand	64	1	11008-045	HCS M8-1.25x45, CL 8.8
31	1	10614-001	Cap, Filler/Breather	65	1	11048-001	Bracket, Bridge Orientation
32	8	10640-002	Bearing Spacer, 1.25 x 1.02 x .318	66	1	11057-001	Asy, Strut, Left Hand
33	4	10642-001	U-Bolt 5/8-18 x 7.00 Gr 8	67	1	11057-002	Asy, Strut, Right Hand
34	1	10669-002	U-Bolt, 1/4-20 x 2.438 x 1.375 Gr 2				

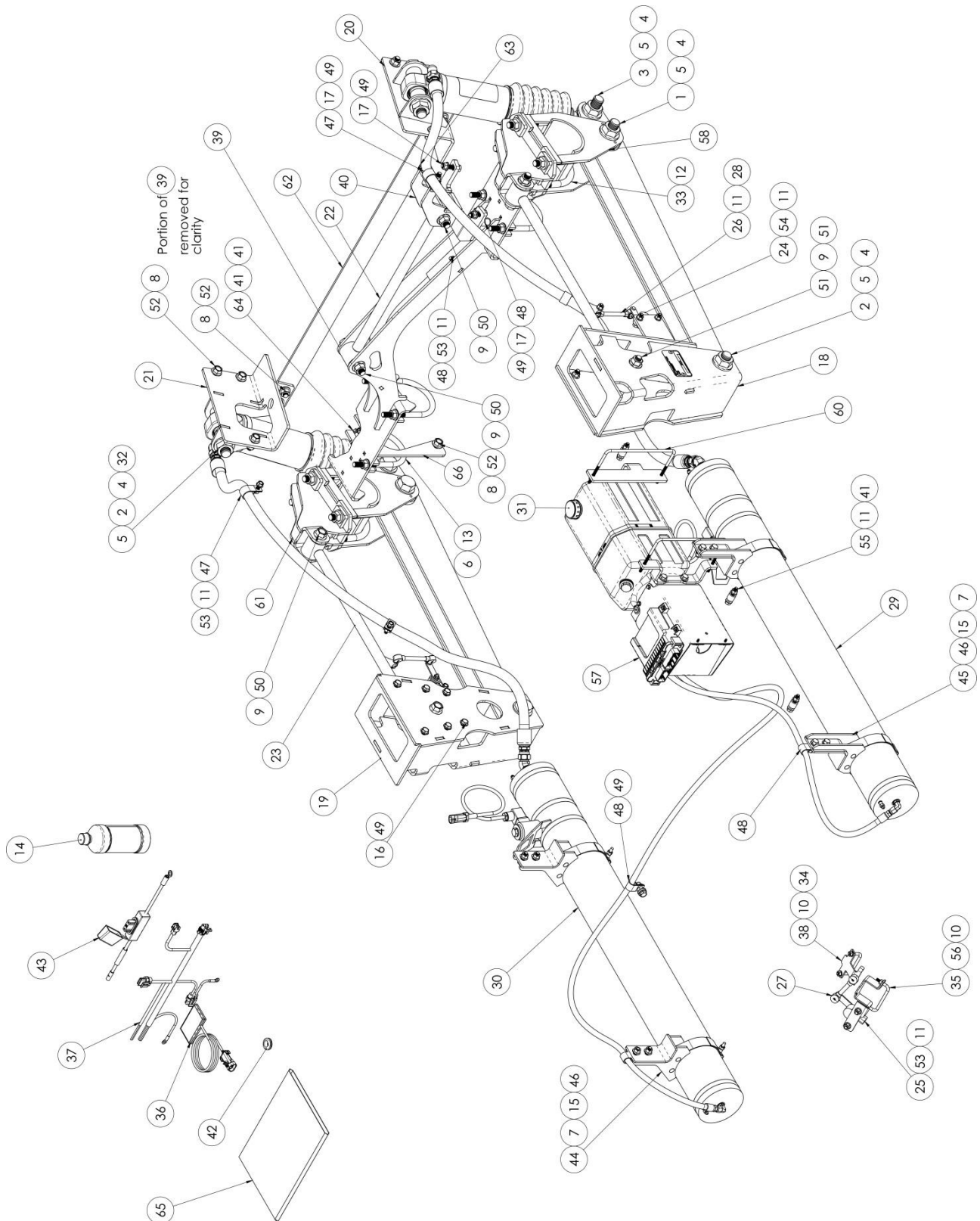
DS96GM-AMC



DS96GM-AMC

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10003-003	HB 1.000-8x6.000, Gr. 8	34	1	10669-005	U-Bolt, 1/4-20 x 3.00 x 1.375 Gr 5
2	4	10003-004	HB 1.000-8x6.500, Gr. 8	35	1	10680-001	Driver Interface
3	2	10003-005	HCS 1.000-8 x 4.500	36	1	10704-006	Wiring Harness, Dash, GM G
4	8	10006-004	HFW 1.000	37	1	10733-003	Pitman Arm Bracket
5	8	10012-003	LFN 1-8, Gr G, Z Top Lock	38	1	10762-004	Bridge, Track Rod Mount
6	6	10012-004	LFN 1/2-20, Gr. G	39	1	10789-006	Track Rod Frame Mount
7	8	10012-005	LFN 3/8-16, Gr G	40	5	10800-004	Tube, .69OD x .42ID x .625L Z
8	11	10012-007	LFN 1/2-13, Gr. G	41	1	10805-005	Grommet, .63ID x 1.13OD x .38T
9	6	10012-008	LFN 5/8-11 Gr G	42	1	10815-001	Battery Fused Lead
10	4	10012-009	LFN 1/4-20, Gr. G	43	4	10830-015	Volume Mount
11	14	10012-010	LFN 5/16-18, Gr. G	44	4	10843-003	T-Bolt Clamp, Range 4.88-5.50
12	8	10012-013	LFN 5/8-18, Gr. G	45	4	10855-002	Vinyl-Coated Loop Clamp, 1" ID
13	3	10383-002	U-Bolt 1/2-20 x 6.00 Gr 8	46	5	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
14	1	10474-001	Silicone Oil, 16 oz. Bottle	47	15	10873-002	LFN M10-1.6, CL 10.9
15	8	10501-001	HFB 3/8-16 x 1.000 Gr 8	48	4	10874-375	HFB 5/8-11x3.750, Gr. 8
16	12	10502-001	HFB M10-1.5 x 30 CL 10.9	49	2	10874-600	HFB 5/8-11 x 6", Gr. 8
17	3	10502-002	HFB M10-1.5 x 40 CL 10.9	50	11	10885-125	HFB 1/2-13x1.250, Gr. 8
18	1	10538-003	Hanger, Left Hand	51	5	10886-100	HFB 5/16-18 x 1.000, Gr. 8
19	1	10539-006	Hanger, Right Hand	52	4	10886-125	HFB 5/16-18 x 1.25, Gr. 8
20	1	10564-003	Upper Strut Mount, Left Hand	53	3	10886-175	HFB 5/16-18 x 1.75, Gr 8
21	1	10564-004	Upper Strut Mount, Right Hand	54	1	10904-004	Bracket, Sensor
22	1	10570-003	Asy, Track Rod	55	1	10941-006	Asy, Power Module, DS96GM-AMC
23	2	10570-004	Asy, Upper Control Arm	56	2	10947-002	Lower Control Arm Mount
24	2	10586-001	Asy, Height Sensor	57	2	10953-002	Lower Control Arm
25	1	10586-002	Asy, Steering Sensor	58	1	10969	Kit, Power Module Mount, Rear
26	2	10587-006	Asy, Linkage, 3.938" SS	59	2	10984-001	Upper Control Arm Mount
27	1	10587-007	Asy, Linkage, 2.887" SS	60	1	10988-001	Crossmember Reinforcement
28	2	10591-003	Ball Stud 5/16-18 x 1.75L	61	1	10993-001	Track Rod Mnt Bolt Plate
29	1	10597-029	Asy, Volume, Left Hand	62	1	11000	Kit, Drawing, DS96GM
30	1	10597-030	Asy, Volume, Right Hand	63	1	11008-045	HCS M8-1.25x45, CL 8.8
31	1	10614-001	Cap, Filler/Breather	64	1	11048-001	Bracket, Bridge Orientation
32	8	10640-002	Bearing Spacer, 1.25 x 1.02 x .318	65	1	11057-001	Asy, Strut, Left Hand
33	4	10642-001	U-Bolt 5/8-18 x 7.00 Gr 8	66	1	11057-002	Asy, Strut, Right Hand
34	1	10669-002	U-Bolt, 1/4-20 x 2.438 x 1.375 Gr 2				

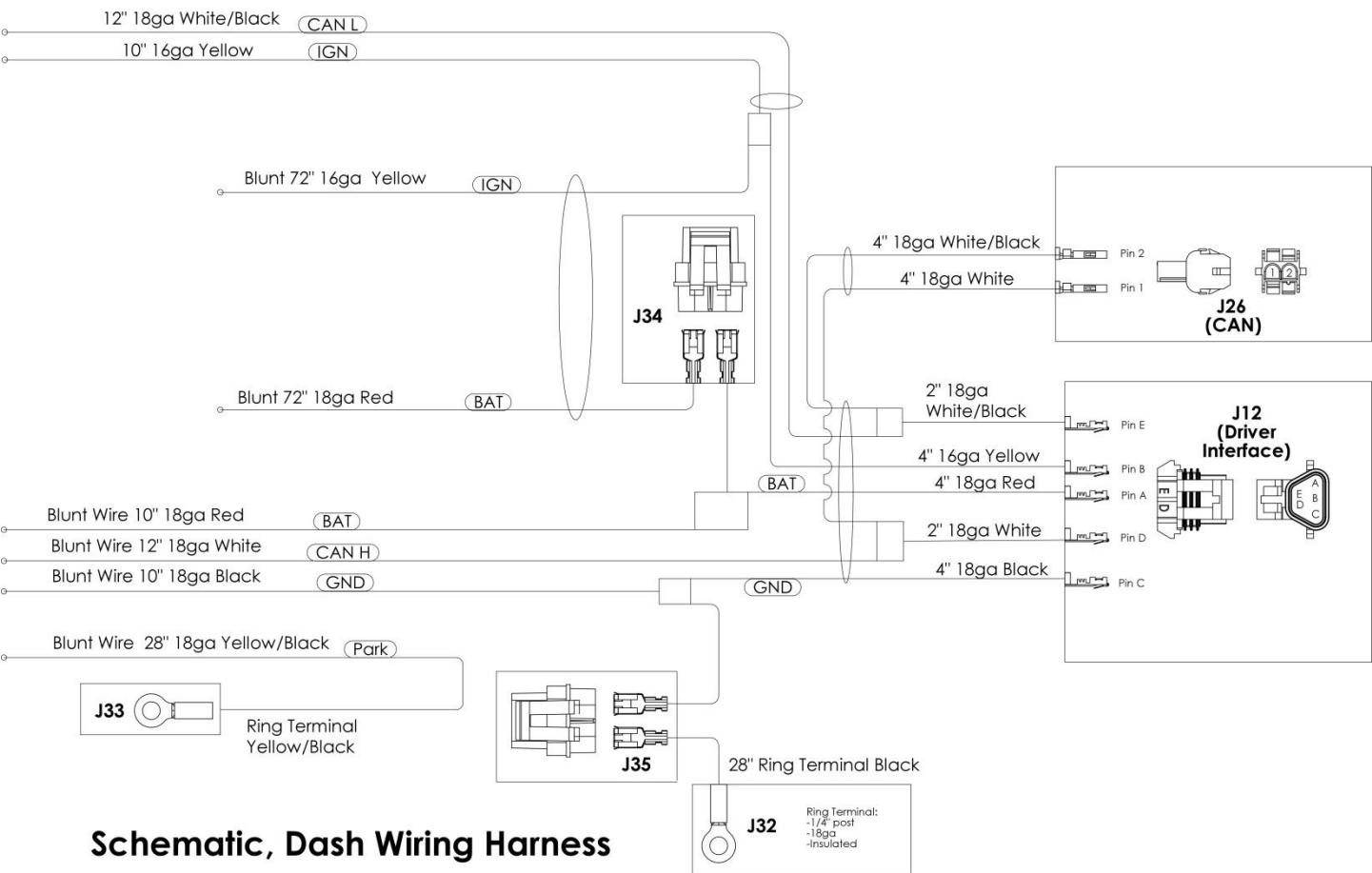
DS96GM-MR



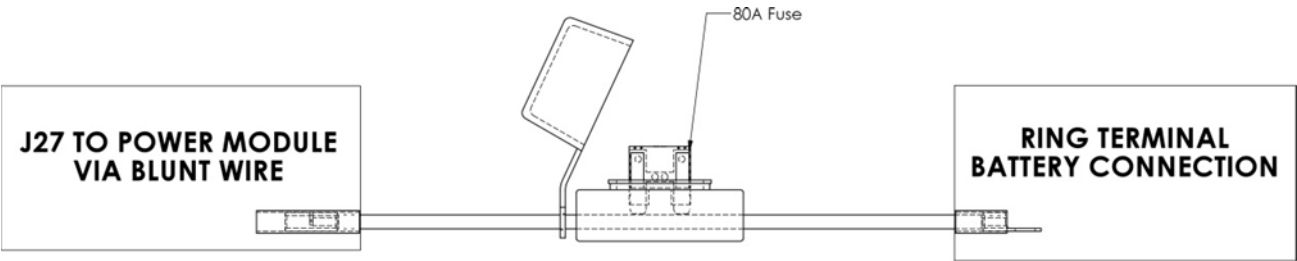
DS96GM-MR

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10003-003	HB 1.000-8x6.000, Gr. 8	35	1	10669-005	U-Bolt, 1/4-20 x 3.00 x 1.375 Gr 5
2	4	10003-004	HB 1.000-8x6.500, Gr. 8	36	1	10680-001	Driver Interface
3	2	10003-005	HCS 1.000-8 x 4.500	37	1	10704-006	Wiring Harness, Dash, GM G
4	8	10006-004	HFW 1.000	38	1	10733-003	Pitman Arm Bracket
5	8	10012-003	LFN 1-8, Gr G, Z Top Lock	39	1	10762-004	Bridge, Track Rod Mount
6	6	10012-004	LFN 1/2-20, Gr. G	40	1	10789-006	Track Rod Frame Mount
7	8	10012-005	LFN 3/8-16, Gr G	41	5	10800-004	Tube, .69OD x .42ID x .625L Z
8	11	10012-007	LFN 1/2-13, Gr. G	42	1	10805-005	Grommet, .63ID x 1.13OD x .38T
9	6	10012-008	LFN 5/8-11 Gr G	43	1	10815-001	Battery Fused Lead
10	4	10012-009	LFN 1/4-20, Gr. G	44	2	10830-013	Volume Mount, Right Hand
11	14	10012-010	LFN 5/16-18, Gr. G	45	2	10830-014	Volume Mount, Left Hand
12	8	10012-013	LFN 5/8-18, Gr. G	46	4	10843-003	T-Bolt Clamp, Range 4.88-5.50
13	3	10383-002	U-Bolt 1/2-20 x 6.00 Gr 8	47	4	10855-002	Vinyl-Coated Loop Clamp, 1" ID
14	1	10474-001	Silicone Oil, 16 oz. Bottle	48	5	10855-003	Vinyl-Coated Loop Clamp, 5/8" ID
15	8	10501-001	HFB 3/8-16 x 1.000 Gr 8	49	15	10873-002	LFN M10-1.6, CL 10.9
16	12	10502-001	HFB M10-1.5 x 30 CL 10.9	50	4	10874-375	HFB 5/8-11x3.750, Gr. 8
17	3	10502-002	HFB M10-1.5 x 40 CL 10.9	51	2	10874-600	HFB 5/8-11 x 6", Gr. 8
18	1	10538-003	Hanger, Left Hand	52	11	10885-125	HFB 1/2-13x1.250, Gr. 8
19	1	10539-006	Hanger, Right Hand	53	5	10886-100	HFB 5/16-18 x 1.000, Gr. 8
20	1	10564-003	Upper Strut Mount, Left Hand	54	4	10886-125	HFB 5/16-18 x 1.25, Gr. 8
21	1	10564-004	Upper Strut Mount, Right Hand	55	3	10886-175	HFB 5/16-18 x 1.75, Gr 8
22	1	10570-003	Asy, Track Rod	56	1	10904-004	Bracket, Sensor
23	2	10570-004	Asy, Upper Control Arm	57	1	10941-001	Asy, Power Module, DS96GM-A
24	2	10586-001	Asy, Height Sensor	58	2	10947-002	Lower Control Arm Mount
25	1	10586-002	Asy, Steering Sensor	59	2	10953-002	Lower Control Arm
26	2	10587-006	Asy, Linkage, 3.938" SS	60	1	10969	Kit, Power Module Mount, Rear
27	1	10587-007	Asy, Linkage, 2.887" SS	61	2	10984-001	Upper Control Arm Mount
28	2	10591-003	Ball Stud 5/16-18 x 1.75L	62	1	10988-001	Crossmember Reinforcement
29	1	10597-037	Asy, Volume, Left Hand, NC	63	1	10993-001	Track Rod Mnt Bolt Plate
30	1	10597-038	Asy, Volume, Right Hand, NC	64	1	11008-045	HCS M8-1.25x45, CL 8.8
31	1	10614-001	Cap, Filler/Breather	65	1	11033	Kit, Drawing, DS96GM-MR
32	8	10640-002	Bearing Spacer, 1.25 x 1.02 x .318	66	1	11048-001	Bracket, Bridge Orientation
33	4	10642-001	U-Bolt 5/8-18 x 7.00 Gr 8	67	1	11057-001	Asy, Strut, Left Hand
34	1	10669-002	U-Bolt, 1/4-20 x 2.438 x 1.375 Gr 2	68	1	11057-002	Asy, Strut, Right Hand

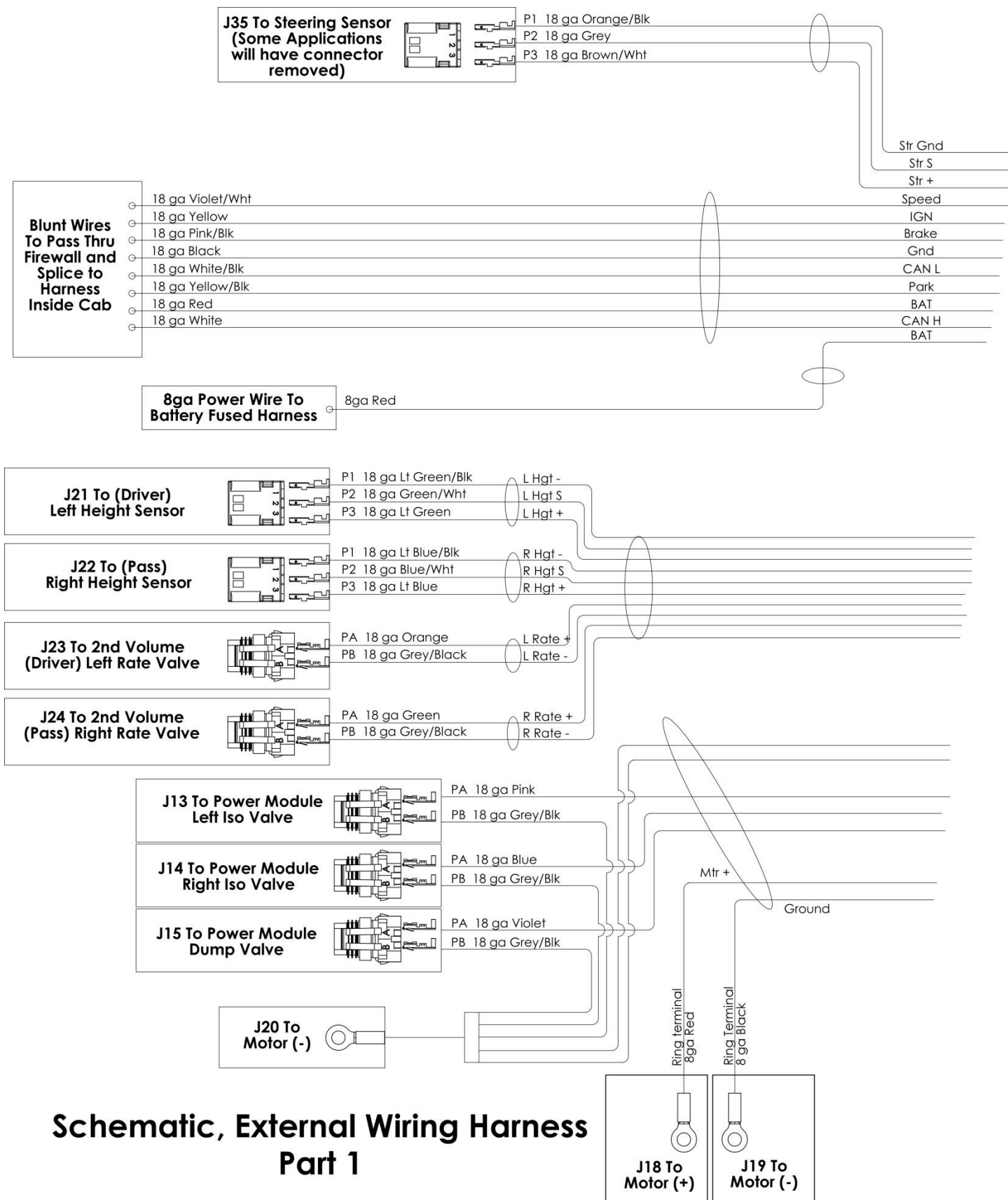
Electrical Schematics

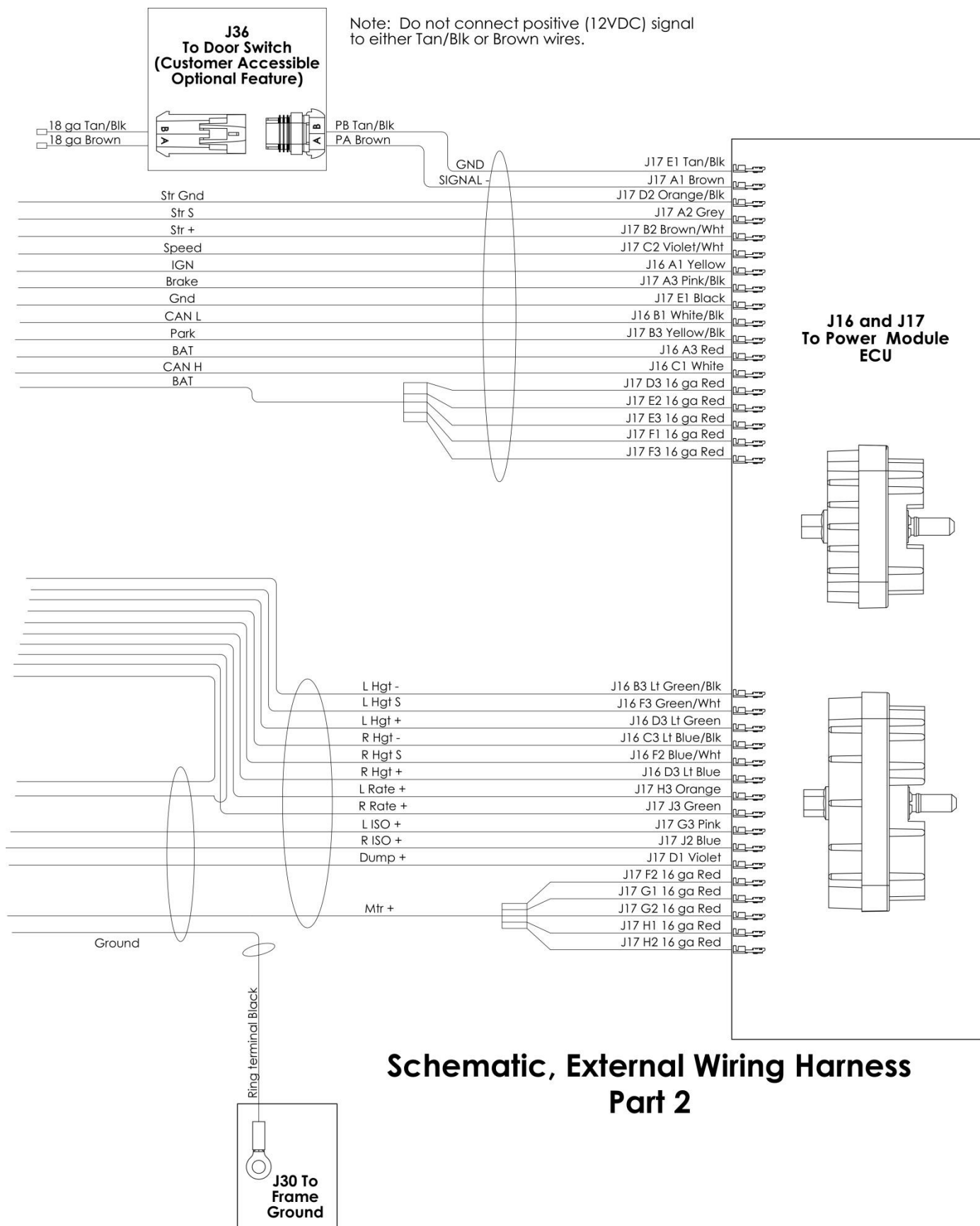


Schematic, Dash Wiring Harness



Schematic, Battery Fuse Lead







LiquidSpring™ LLC

4899 E 400 S
Lafayette, IN 47905

Phone: 765-474-7816

Fax: 765-474-7826

Web: www.liquidspring.com

Information contained in this publication is subject to change without notice or liability. LiquidSpring LLC reserves the right to revise the information presented or discontinue the production of parts described at any time.