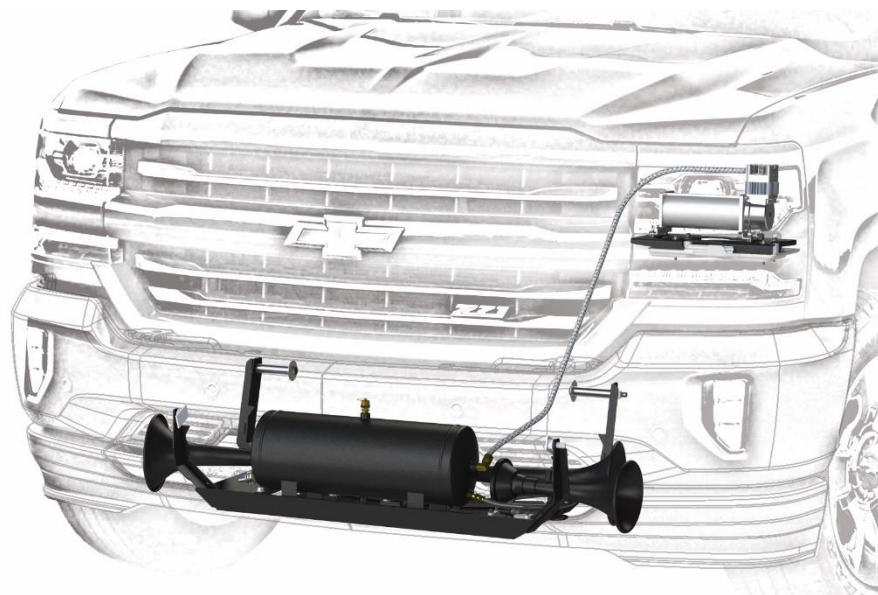




GM1500-230 INSTALLATION MANUAL

REV: A (5/8/2020)



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GM1500-230

Installation and Operation Manual

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on [PC, MAC, and all smart devices](#)



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1. How to Use this Manual

1.1. Interactive Manual using Adobe Reader

It is recommended to open this digital PDF using Adobe Reader[®] to take advantage of following key features:

- **Hyperlinks** ([blue underlined text](#)) allow access to additional content via internet; click/tap to activate
 - Includes [Installation Figures](#) and “[Figure xx](#)”
- **Table of Contents** page allows easily navigating this manual; click/tap any section line to go to it
- **Bookmarks** allow quickly navigating to any section; click/tap
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- visit <https://get.adobe.com/reader/otherversions/>

On Android, iPhone/iPad, and Windows devices,

- visit <https://acrobat.adobe.com/us/en/acrobat/mobile-app.html>
-

1.2. Your Kit Part Number and this Manual

This manual covers installation, testing, and operation of following kit part numbers

1.2.1. **GM1500-230** (i.e., 230 Train Horns)

NOTE: Illustrations and pictures contained herein may represent only one kit part number. Where critical differences exist between kits (i.e., different parts, orientation, mounting points, etc.), additional text, or necessary graphics are provided to minimize confusion.

Parts list explicitly state kit differences with **(BOLD TEXT)** inside parenthesis, shown below part number.

1.3. Illustration/Photo Details and Orientation

This manual may use digitally created illustrations, and/or actual photos of example vehicle. These graphics may not include exact items found on your vehicle (i.e., electrical wiring, fuel lines, body panels, etc.). Illustrations typically will be missing details and are for clarity to show critical mounting locations and orientation on vehicle.



Throughout this manual yellow arrows with text reading “FRONT”, may be present over illustrations and pictures. These arrows specify direction toward front of vehicle and provide clarity to how illustration is viewed.

End of Section



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2. Safety First

Read manual thoroughly before starting installation of this kit. Verify you have all parts listed and that you clearly understand this installation procedure. Contact Kleinn technical support for any questions.

Installation of this kit requires **moderate mechanical aptitude**; seek professional help if you're not competent using hand tools in tight uncomfortable spaces, and around possibly rusted and sharp vehicle parts.

Before starting, obtain proper tools required to perform installation correctly, adequate lighting, eye protection, hearing protection for operating train horns, and hand protection to guard against sharp edges and metal burrs, which may be present on kit parts and vehicle parts.

Throughout this manual the following words may be used; be aware of their meaning and application.

CAUTION: means damage could occur to vehicle, or kit parts during, or after installation

WARNING: means injury could occur to you or others, including damage to vehicle, or kit parts

DANGER: means serious injury or death could occur to you or others during installation

End of Section



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3. Application Chart

3.1. 100% Direct Bolt-On Vehicle List

GM1500-230 is a 100% direct bolt-on aftermarket product for GM vehicles listed in below chart; every effort has been made to verify correct fitment on these vehicles in their factory, non-modified conditions.

MODEL YR	MODEL	DRIVE	ENGINE	BODY	TRIM
2007.5-2013	SILVERADO 1500	ALL	ALL	ALL	ALL
2014-2015	SILVERADO 1500	N/A**	N/A**	N/A**	N/A**
2016-2018	SILVERADO 1500	ALL	ALL	ALL	ALL
2007.5-2018	SIERRA 1500	ALL	ALL	ALL	ALL

NOTE: All vehicles listed may require drilling holes for ground wires and installing switches, based on preference of installed switch locations and wire grounding points.

3.2. **Excluded Vehicles

GM1500-230 is NOT compatible with following GM vehicles:

- 3.2.1. **2014-2015 Silverado 1500 with OEM front bumper**, due to interference with Bumper Brackets. *Kit MAY be compatible on these vehicles with aftermarket front bumper.*
- 3.2.2. Any vehicle equipped with GM snow plow package, power take off, or factory installed front winch mounted behind front bumper

3.3. Aftermarket Product Compatibility

This kit has been designed and tested to be compatible with leading manufacturers of aftermarket truck steps, such as Amp Research Power Steps® and all OEM standard and optional steps.

This kit has NOT been designed or tested for use with leading manufacturers of aftermarket front bumpers.

End of Section



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4. Kit Installation Overview

GM1500-230 consists of following sub-systems, located on vehicle, as follows:

ITEM	DESCRIPTION	MOUNTING LOCATION	APPROX. INSTALL TIME
1	230 Series Large, Medium, and Small Horn with Air Solenoid	Directly behind front bumper. Attached to frame rails.	2+ Hours
2	3 Gal. Air Tank	Directly behind front bumper. Attached to frame rails.	2+ Hours
3	6350RC Air Compressor	Inside Engine Compartment, in secondary battery tray (Driver's Side)	1-2 Hours

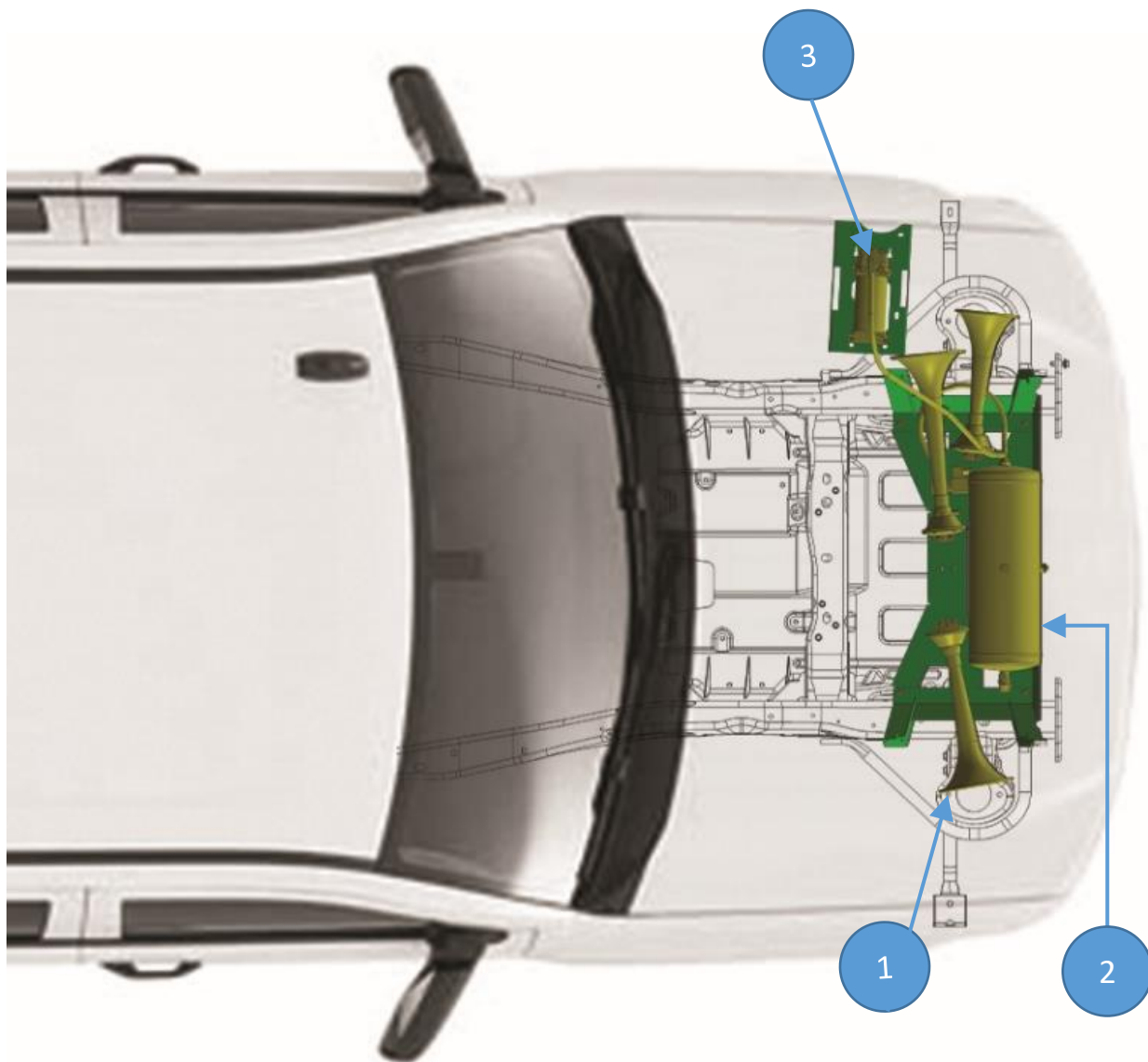


Figure 1 – Top View Showing Kit Layout (230 Series Horn Kit shown)



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4.1. Approximate Installation Time

GM1500-230 is a multi-faceted product consisting of multiple mechanical, electrical, and pneumatic components.

For a typical home mechanic, auto enthusiast, or technician installing a Kleinn Bolt-On kit for first time, a professional installation job with setup and testing of final product, is estimated to take:

- **6-10 Hours**
-

4.2. ***Quick Install Outline

For person(s) with experience installing Kleinn bolt-on kits, GM1500-230 can be installed in an order similar to below:

1. Route Wiring, install Relay, and install Horn Switch
2. Disassemble pre-packaged Horn Kit (i.e., unscrew Trumpets and separate Horn Drivers from mounting bar)
3. Attach Air Fittings to Air Tank
4. Attach Air Tank Assembly to Middle Plate Bracket
5. Attach Air Horn Drivers to Middle Plate Bracket
6. Connect Air Tubing to Air Horn Drivers and Air Tank
7. Install Compressor Bracket and Air Compressor onto 2nd OE Battery Tray
8. Install Compressor Air Filter
9. Install Driver's Side and Passenger's Side Brackets to frame
10. Install Middle Plate Assembly to Frame Brackets
11. Connect Air Compressor Leader Hose, Air Tubing and Wiring to Air Horns and Air Tank Fittings
12. Install Quick Connect Coupler and route Air Tubing
13. Install Trumpets into Horn Drivers
14. Test System and adjust, as needed

End of Section



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5. List of Tools and Supplies

5.1. Standard Tool List (Required)

- 5.1.1. Basic mechanic's 3/8" drive socket sets with extensions
 - Inch Size Sockets (1/4" – 1" Hex)
 - Metric Size Sockets (6mm – 20mm Hex)
- 5.1.2. Basic mechanic's combination wrenches (box/open-end)
 - Inch Size Wrenches (1/4" – 1" Hex)
 - Metric Size Wrenches (6mm – 20mm Hex)
- 5.1.3. Basic mechanic's screwdriver set (Philips, Flat Head)
- 5.1.4. Diagonal Cutter/Wire Cutter Pliers
- 5.1.5. Wire Strippers
- 5.1.6. Wire Terminal Crimpers
- 5.1.7. Slip-Joint Pliers
- 5.1.8. Utility Knife, or Utility Razor blade
- 5.1.9. Magnetic retrieval tool

5.2. Special Tool List (Recommended)

- 5.2.1. 10-100 ft.-lb. torque wrench
- 5.2.2. 20-150 in.-lb. torque wrench
- 5.2.3. Multi-Meter for 12V DC electrical systems, or equivalent
- 5.2.4. 12V DC Test Light, or equivalent
- 5.2.5. Trim Panel Tool, for removing wiring push pins

5.3. Shop Consumables List (Recommended)

- 5.3.1. Quality Electrical tape
- 5.3.2. Di-electric grease for electrical connections
- 5.3.3. Heat Shrink tubing for electrical connections
- 5.3.4. Blue Loctite (i.e., Loctite PN 242), or equivalent
- 5.3.5. Sand Paper, or Wire Brushes for installing ground wires
- 5.3.6. Extra plastic zip ties > 6" long
- 5.3.7. Extra NPT sealant (i.e., Kleinn Air Horn Juice, Teflon tape, etc.)
- 5.3.8. Touch-up paint for frame/chassis
- 5.3.9. Typical cleanup supplies

End of Section



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6. Parts List

Below Parts List covers following kit part numbers:

6.1.1. **GM1500-230** (i.e., 230 Train Horns)

Unpackage and organize Kit across a large work area and verify all parts are included, as listed below. Contact Kleinn support if any questions arise.

6.1.2. Review pre-packaged items (i.e., train horn box, air compressor, air tank, etc.)

6.1.3. Review Air Fittings and Tubing



6.1.4. Review Wiring and Accessories

6.1.5. Review Bolt-On Mounting Brackets

6.1.6. Review Hardware/Fasteners

6.2. Pre-Packaged Electro-Mechanical Items

NOTE: Items in this section come in their own packages and may include additional items inside package

ITEM	QTY	PART NUMBER	DESCRIPTION	PICTURE
1	1	6350RC	6350RC Compressor Kit, with included hardware, and remote air supply line	
2	1	230	230 Series Horn Kit, with included solenoid/valve, and 1/4" Air Tubing, 20 ft. long	



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6.3. Air Fittings and Related Items

ITEM	QTY	PART NUMBER	DESCRIPTION	PICTURE
3	1	6350RT	Air Tank, 3.0 Gal., 7-Port	
4	1	51412 (view location on Air Tank)	1/2" NPT X 1/4" Compression Fitting	
5	1	52835 (view location on Air Tank)	1/4" NPT, Drain Valve	
6	1	52175 (view location on Air Tank)	1/4" NPT, 175 PSI Safety Valve	
7	1	50040 (view location on Air Tank)	1/4" NPT Hex Plug	
8	1	51414L (view location on Air Tank)	1/4" NPT X 1/4" Compression Fitting, 90 Deg Elbow	
9	1	2151 (view location on Air Tank)	1/4" NPT Pressure Switch	



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ITEM	QTY	PART NUMBER	DESCRIPTION	PICTURE
10	1	25014	1/4" Air Tubing, 10 ft. long	
11	1	1302	Quick Connect Air Coupler Kit, with relocation bracket	
12	1	INF-1	Inflator Kit, with Air Hose and Bag	
13	1	KLEINN AIR HORN JUICE	Thread Sealant for NPT Fittings	
14	1	30103	KLEINN LEADER HOSE EXTENSION	



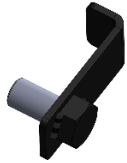

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6.4. Electrical Small Components and Related Items

ITEM	QTY	PART NUMBER	DESCRIPTION	PICTURE
15	1	320	Terminator – Nickel Plated Remote Horn Button	
16	1	WIRE KIT	Full Wire Kit, with electrical connectors and zip ties	
17	1	1/4" WIRE LOOM, 20 ft. Long	1/4" Wire loom for electrical routing	
18	1	1/8" WIRE LOOM, 10 ft. Long	1/8" wire loom for electrical routing	




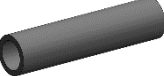
6.5. Bolt-On Mounting Brackets & Special Hardware

ITEM	QTY	PART NUMBER	DESCRIPTION	PICTURE
19	2	GM-1500-BOLT-TH	FRAME MOUNT BOLT W/ TAB. *USED ONLY ON VEHICLES W/O TOW HOOKS	
20	1	GM1500-BRKT-DR	DRIVER FRAME MOUNT, MAIN SUPPORT BRACKET	



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ITEM	QTY	PART NUMBER	DESCRIPTION	PICTURE
21	1	GM1500-BRKT-PA	PASSENGER FRAME MOUNT, MAIN SUPPORT BRACKET	
22	1	GM1500-BRKT-MD	MAIN TANK & HORN MOUNTING BRACKET	
23	1	GM1500-COMP-BRKT	COMPRESSOR MOUNTING BRACKET (BATTERY TRAY)	
24	2	GM1500-SPCR	FRAME MOUNT BOLT SLEEVE	



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6.6. Hardware/Fasteners

ITEM NO.	SIZE, TYPE	DESCRIPTION	WHERE USED	QTY
H1	5/16"-18 X 1", SQUARE NECK BOLT	CARRIAGE BOLT, GRADE 2, ZINC PLATED	HORN MOUNTING (6) BRACKET MOUNTING (6) TANK MOUNTING (4)	16
H2	5/16"-18, LOCK NUT	FLANGED NYLON LOCKNUT, ZINC PLATED	HORN MOUNTING (6) BRACKET MOUNTING (6) TANK MOUNTING (4)	16
H3	5/16", FLAT WASHER	SAE FLAT WASHER, ZINC PLATED	HORN MOUNTING (6) BRACKET MOUNTING (6) TANK MOUNTING (4)	16
H4	5/16" X 1.25", FENDER WASHER	FENDER WASHER, ZINC PLATED	TANK MOUNTING (4)	4
H5	1/2" X 2", FENDER WASHER	FENDER WASHER, ZINC PLATED	BRACKET TO FRAME (2)	2
H6	1/2"-13 X 5", HEX BOLT	HEX BOLT, GRADE 2, ZINC PLATED	BRACKET TO FRAME (2)	2
H7	1/2", FLAT WASHER	SAE FLAT WASHER, ZINC PLATED	BRACKET TO FRAME (2)	2
H8	1/2"-13, LOCK NUT	FLANGED NYLON LOCKNUT, ZINC PLATED	BRACKET TO FRAME (2)	2
H9	10-24 X 1.25", SQUARE NECK BOLT	CARRIAGE BOLT, GRADE 2, ZINC PLATED	COMPRESSOR MOUNTING (4)	4
H10	10-24 HEX NUT	HEX NUT, ZINC-PLATED	COMPRESSOR MOUNTING (4)	4
H11	M6 X 60mm, HEX BOLT	HEX BOLT, GRADE 8.8, ZINC PLATE	COMPRESSOR BRACKET TO BATTERY TRAY (4)	4
H12	M6, LOCK WASHER	SPLIT LOCK WASHER, ZINC PLATED	COMPRESSOR BRACKET TO BATTERY TRAY (4)	4
H13	M6 X 18mm, FENDER WASHER	FENDER WASHER, ZINC PLATED	COMPRESSOR BRACKET TO BATTERY TRAY (4)	4

End of Section

7. On-Vehicle Electrical Installation

CAUTION: Follow all recommended safety precautions for working on vehicle's electrical system; consult vehicle owner's manual for further instruction.

Review Suggested Wiring Diagram for Ignition Relay

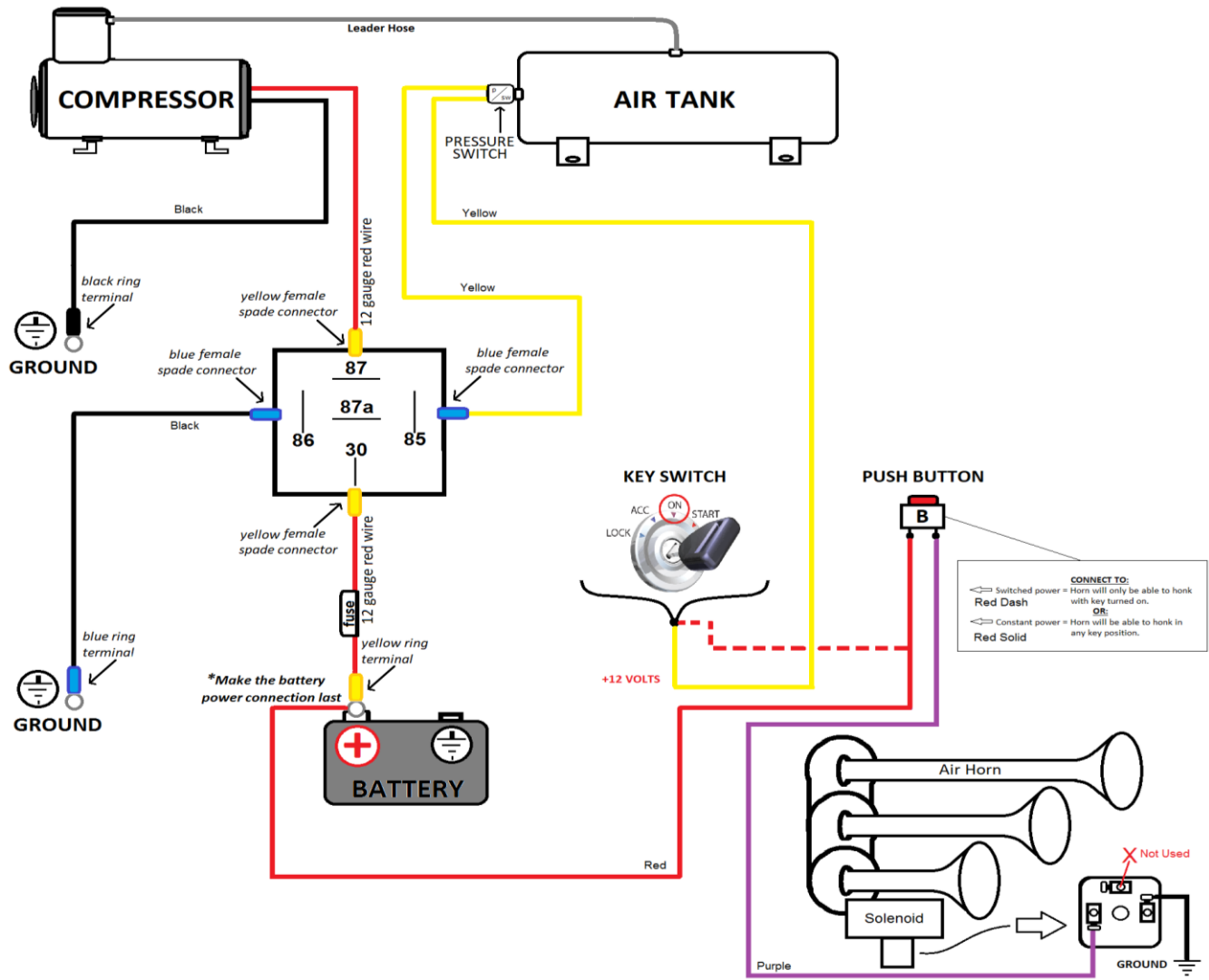


Figure 2 – Suggested Ignition Relay Diagram for 230/730 Triple Train Horn

7.1. Review suggested Wire Routing for Horn, Air Compressor, and Pressure Switch

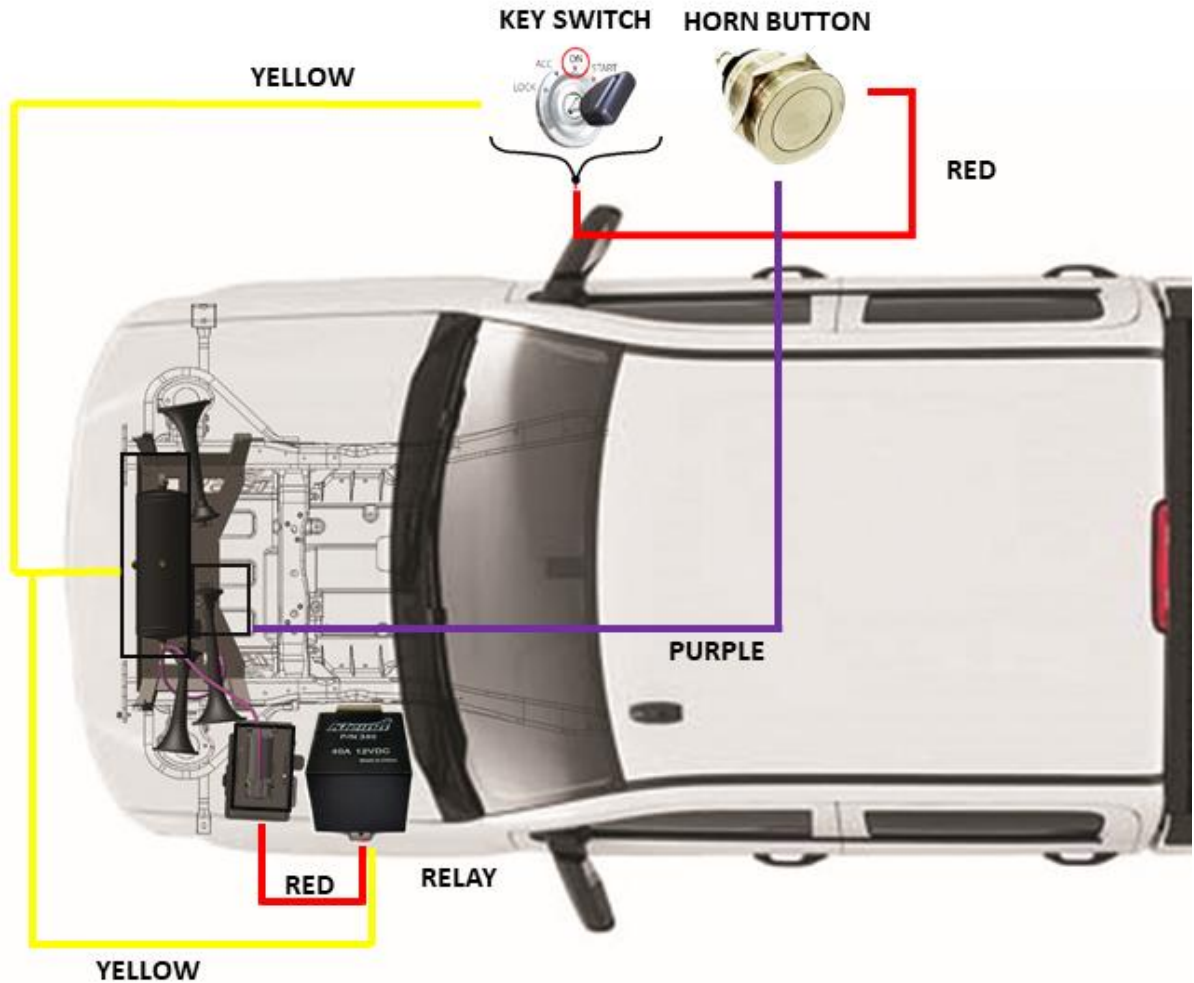


Figure 3 – Suggested Wire Routing for Horn, Air Compressor, and Pressure Switch

7.2. Disconnect Vehicle Battery(s)

7.3. Attach Relay to Vehicle

- 7.3.1. Fasten relay to vehicle body, under hood using supplied self-tapping screws. It is recommended to install in location near factory ground bolt, or battery(s) to minimize drilling holes.

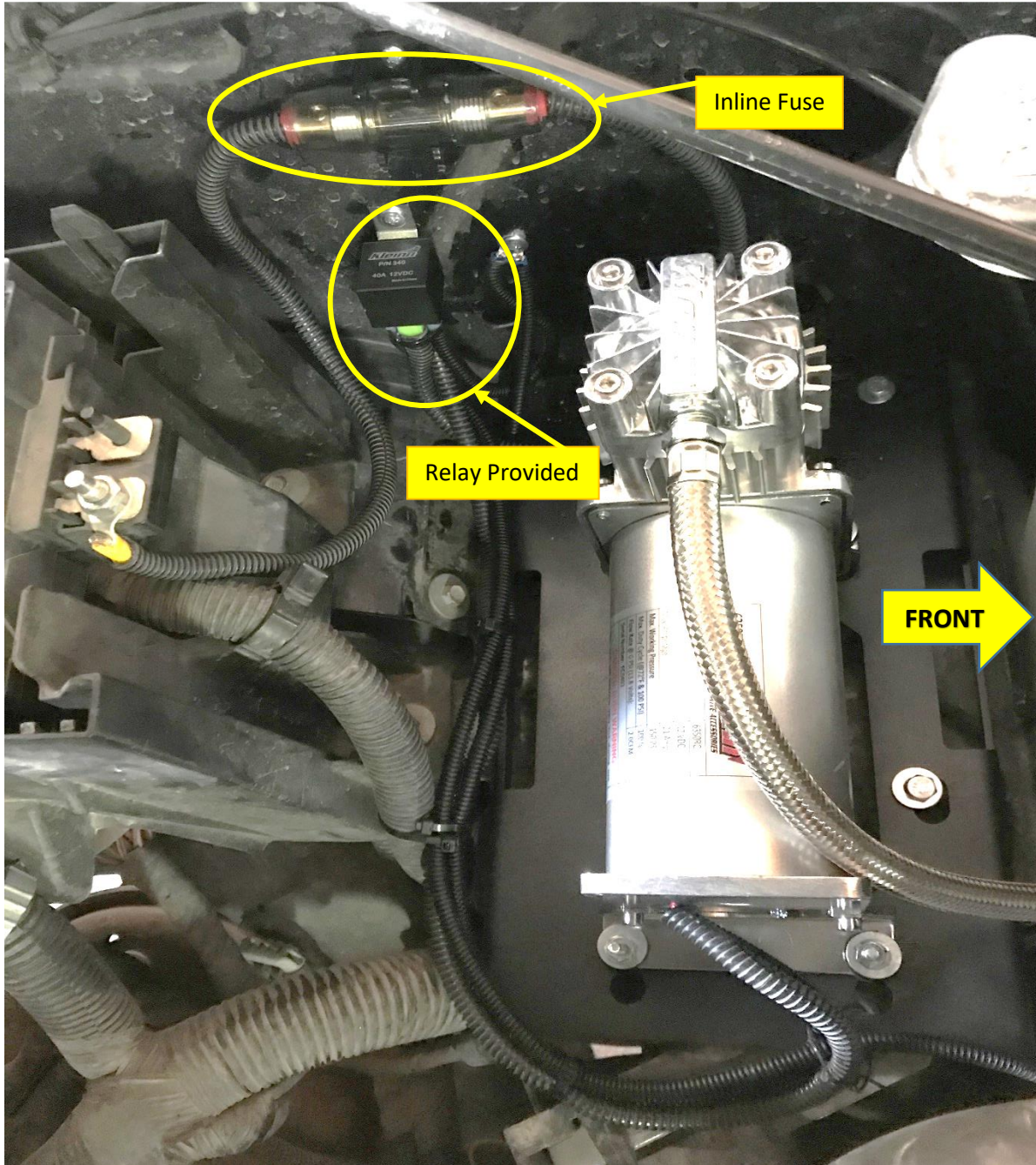


Figure 4 – Compressor Mounted, with Wiring Recommendation



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7.4. Route Wiring and Install Horn Button

- 7.4.1. Route wiring throughout vehicle, per diagrams; however, installer may route as desired.
- 7.4.2. Insert all wiring into included wire loom and ensure loom is away from all sharp edges, hot vehicle parts (i.e., exhaust, engine, radiator), and fasten securely to vehicle using zip ties, or equivalent.

NOTE: Do not cut wires to length until 100% sure of length required for final connections.

- 7.4.3. Install supplied fuse holder on end of power wire by cutting the loop in fuse holder and connecting supplied Ring terminal to one end and Butt connector on other end.

CAUTION: Do not install 30-amp fuse until all electrical connections are final.

- 7.4.4. Find a suitable location for horn push-button (i.e., in dash, center console, etc.); verify location has 1"+ of clearance behind for terminals. Mark location for drilling.
- 7.4.5. Drill a 3/4" hole at location. Route horn button wires to hole then slide push-button retaining nut over wires and connect per wiring diagram. Install push-button into hole and tighten retaining nut securely on backside.

7.5. Connect Relay to Wiring

- 7.5.1. Connect routed wiring to relay, per wiring diagram.

7.6. Connect Air Horn Solenoid

- 7.6.1. Vehicle space constraints make it difficult to connect Air Horn Solenoid in-vehicle; therefore, it is recommended to cut and connect a section of wiring to Solenoid during bench assembly, then perform final connection once Air Horn assembly is installed.

7.7. Pressure Switch

- 7.7.1. Vehicle space constraints make it difficult to connect pressure switch in-vehicle; therefore, it is recommended to cut and connect a section of wiring to pressure switch during bench assembly, then perform final connection once Air Tank is installed in vehicle.

End of Section

8. Bench Assembly Steps

Complete following steps off vehicle to facilitate final installation.

NOTE: ALL HARDWARE WILL BE SPECIFIED IN INSTRUCTIONS USING ITEM NO.'S FOUND IN PARTS LIST.

[See Parts List](#)

8.1. Disassemble Pre-Packaged Horn Kit from Box

8.1.1. Unpackage and fully disassemble included train horn kit; Air Horn Drivers must be separated from Trumpets and included mounting Bar to allow individual Air Horn Driver installation on Bracket.

[Click Here to View Instructions on Kleinn.com](#)

8.2. Assemble Air Fittings to Air Tank

8.2.1. Apply two small drops of [Kleinn Air Horn Juice](#) to each male pipe thread.

8.2.2. Attach Air Fittings to Air Tank, per below Figure.

8.2.3. Hand-tighten each fitting, then further tighten each 1/4-1/2 turn using proper sized box-end wrench; adjust as necessary to match fitting orientation shown.

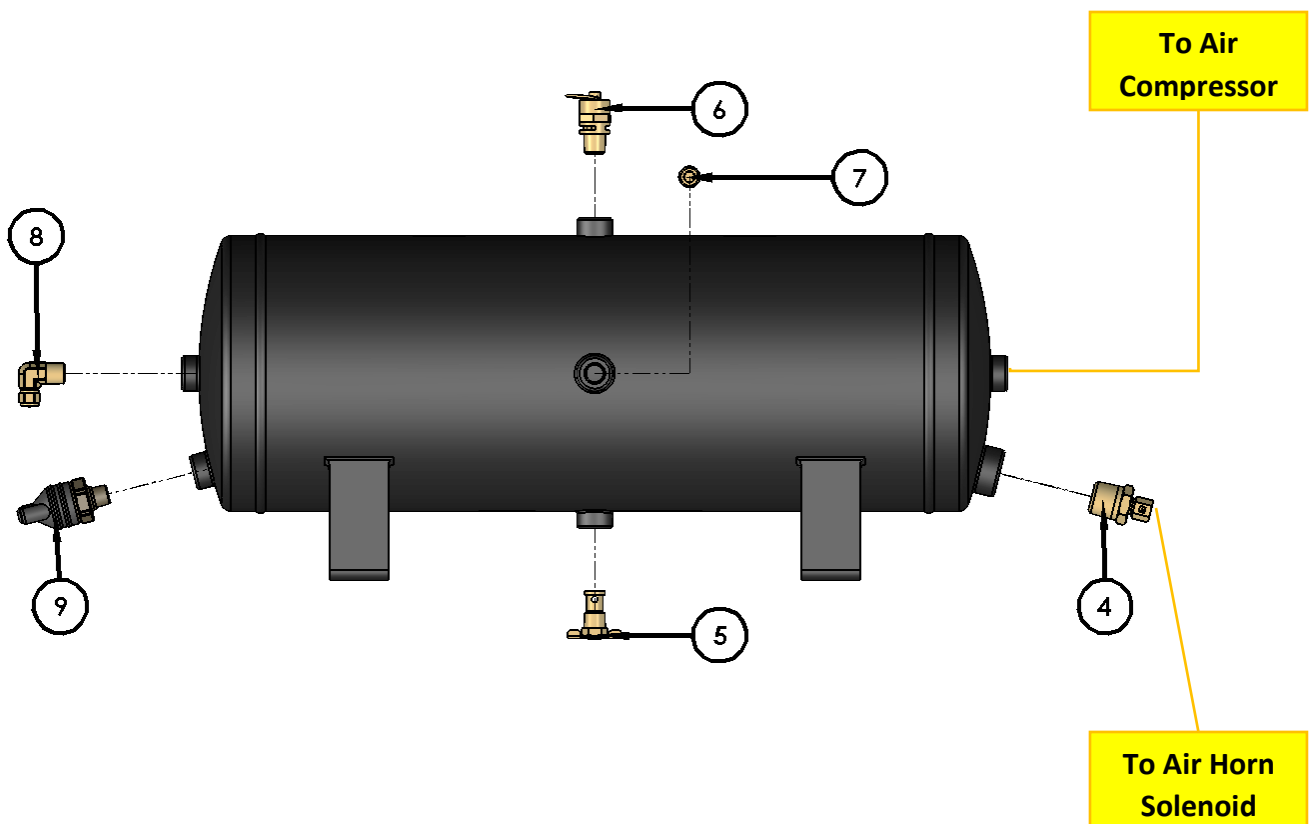


Figure 5 – Fitting Locations on Air Tank ([Click Here to View Fittings List](#))

8.3. Mount Air Tank and Horn Drivers to Middle Plate Bracket

- 8.3.1. Using H1, H2, H3 & H4, prepare to mount the Tank to the GM1500-BRKT-MD Bracket.
- 8.3.2. Assemble fasteners clean and dry and hand-tighten.
- 8.3.3. **Final torque all Air Tank hardware to 75 in-lbs.** Air Horn Driver final torque will occur later.

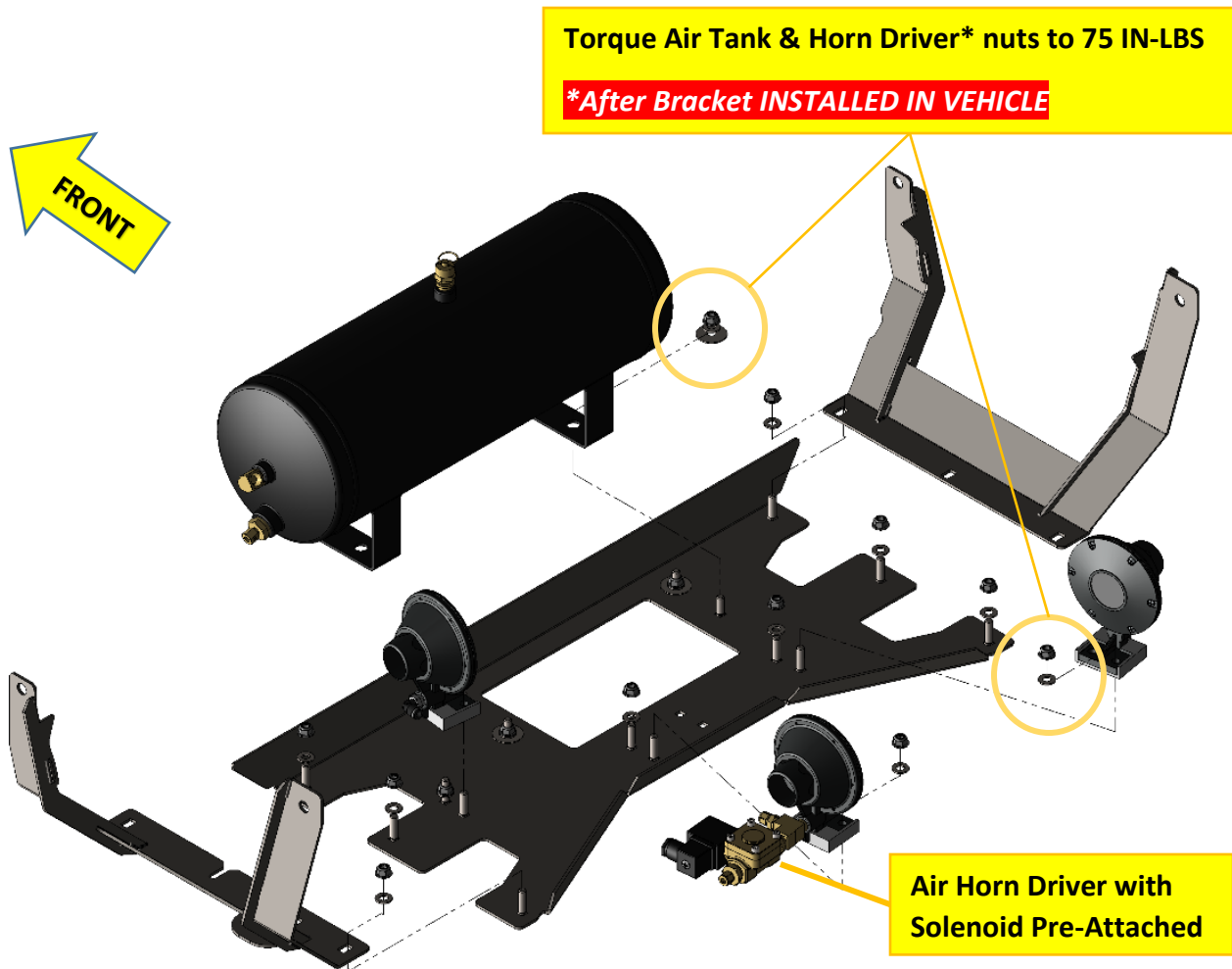


Figure 6 – Exploded view of Air Horn Driver and Air Tank onto Middle Plate (Shown with Side Brackets)

8.4. Connect Air Tubing to Air Tank and Air Horn Drivers

- 8.4.1. Using supplied 1/4" Air Tubing, connect Air Horn Solenoid directly to Air Tank, as shown in below figure.
- 8.4.2. Using supplied 1/4" Air Tubing, connect both Short and Medium Air Horn Drivers to Solenoid.

NOTE: space constraints exist in vehicle during Air Horn and Air Tank Assembly installation; therefore, Air Tubing connection should be performed outside of vehicle.

Below figure shows Trumpets installed for reference only; they should NOT be installed at this time.

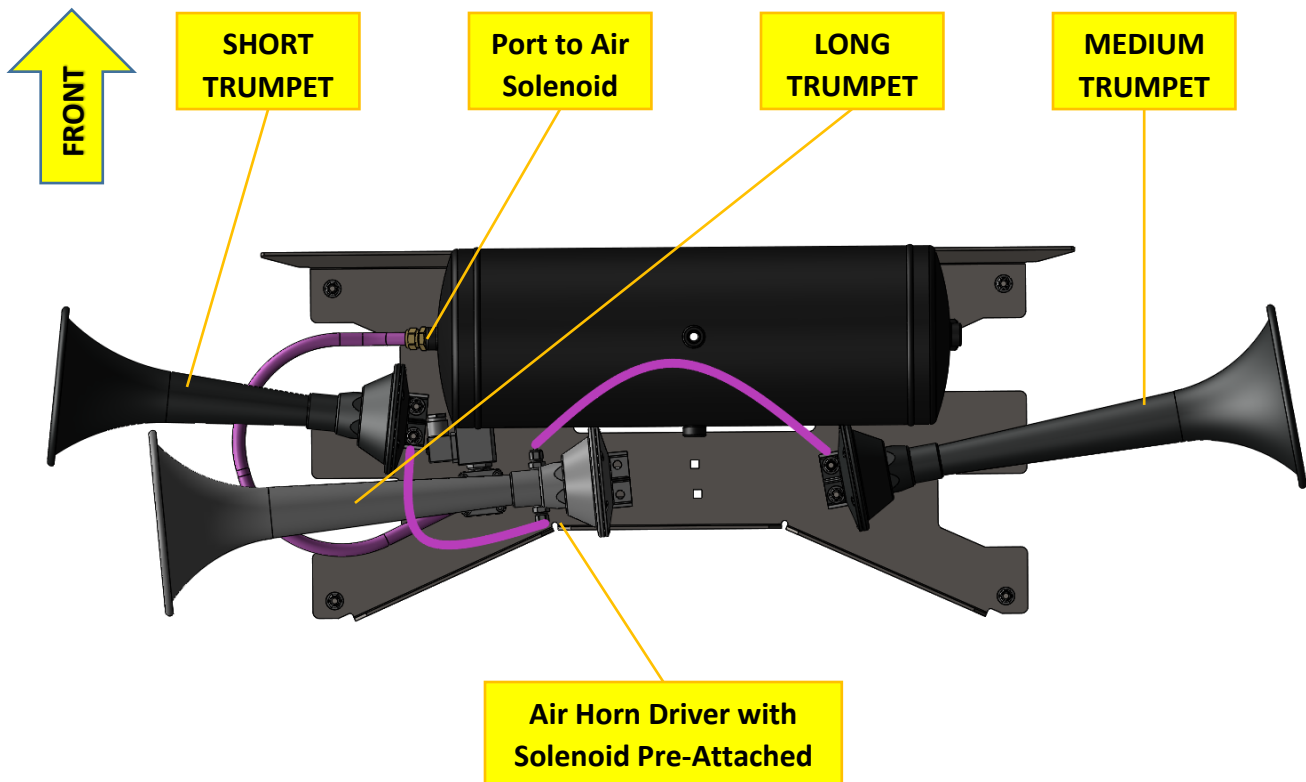


Figure 7 – Air Horn Drivers connected with Air Tubing example (Shown with Trumpets installed)

End of Section

9. On-Vehicle Mechanical Assembly Steps

Complete following steps *on vehicle*.

Raise vehicle off ground using appropriate vehicle lift, ramps, or jack stands.

DANGER: Installation requires being underneath vehicle and applying forces to vehicle chassis. Follow all recommended safety precautions for raising vehicle; consult vehicle owner's manual.

9.1. Air Compressor Installation

9.1.1. Locate OE 2nd Battery Tray on Driver's side of vehicle

9.1.2. Remove Four (4) OE Bolts securing Battery Tray, as shown in figure 8 below.

9.1.3. Place GM1500-COMP-BRKT over Tray and attach using H11, H12 & H13, as shown in figure 9 below.

9.1.4. Assemble fasteners clean and dry using proper socket, or box-end wrench, then **torque to 60 in-lbs.**

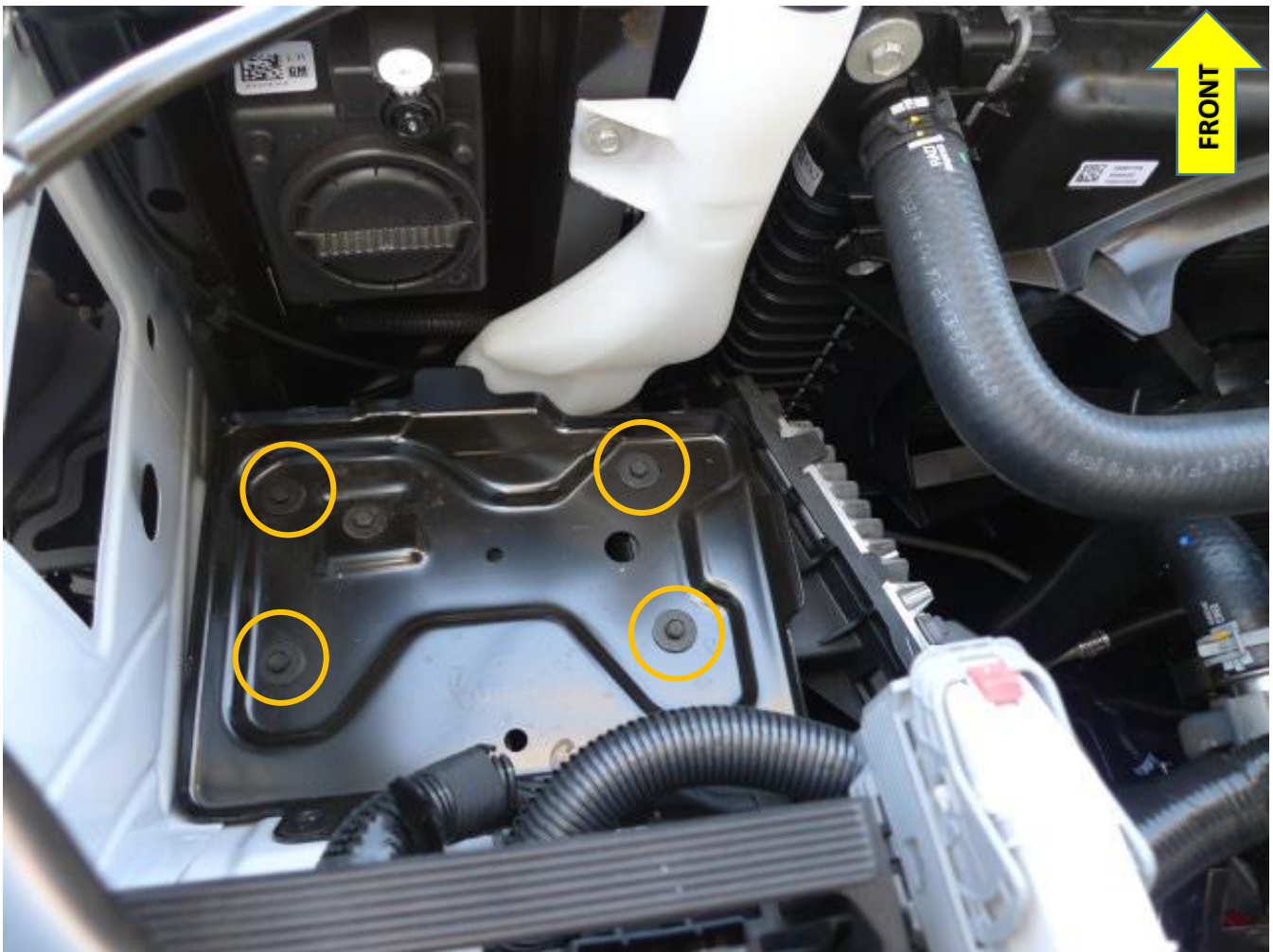


Figure 8 – GM1500-COMP-BRKT and OE 2nd Battery Tray Mounting Bolts to remove

9.1.5. Mount Compressor to GM1500-COMP-BRKT, using H9 & H10, as shown in figure below. **Tighten hardware to 25 in-lbs.**

NOTE: For ease of install, insert Carriage Bolts into Compressor first and loosely attach nuts w/ washers. Lower Compressor with ALL Carriage Bolts loosely attached, into specified Key-hole Slots in Bracket.



Figure 9 – Compressor Slots and Bracket Orientation Shown (as installed in vehicle)

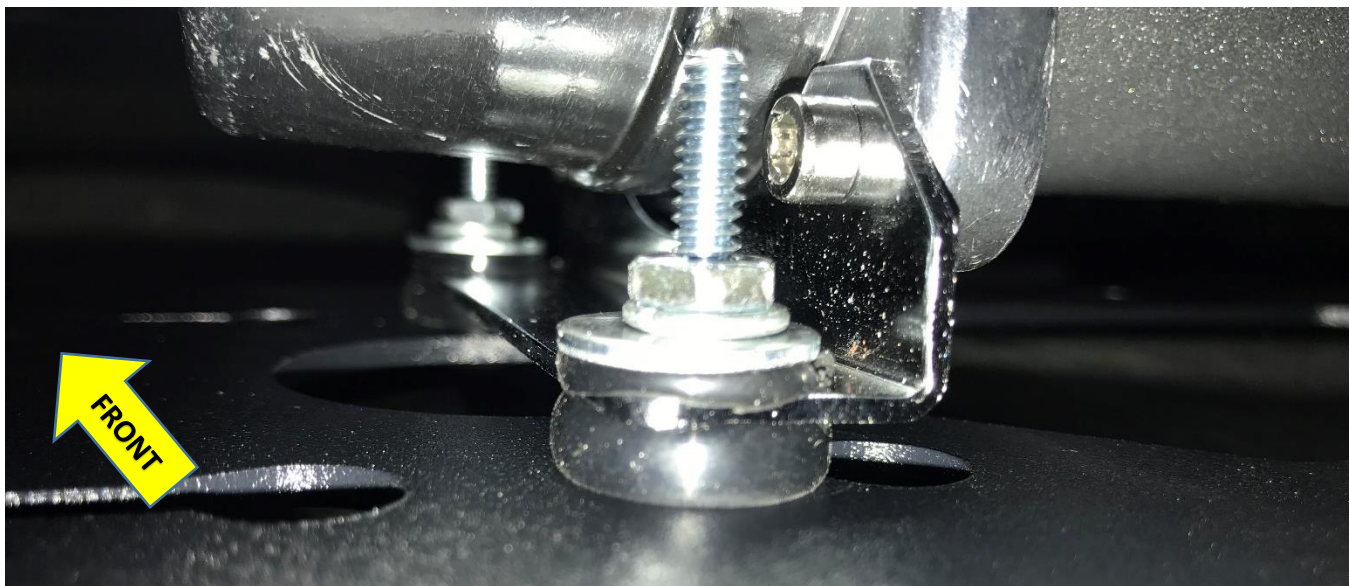


Figure 10 – Compressor Carriage Bolts attached and Torqued

9.2. Attach Leader Hose Extension to Air Compressor

- 9.2.1. Apply two small drops of [Kleinn Air Horn Juice](#) to male pipe thread on Compressor Leader Hose.
- 9.2.2. Attach Leader Hose Extension and hand tighten; use wrench to further tighten 1/4-1/2 Turn

CAUTION: do NOT over tighten Fitting onto Leader Hose; over tightening may damage one-way ball valve. Read all instructions accompanying Air Compressor thoroughly.

- 9.2.3. Route Leader Hose Extension to Air Tank and away from all rotating, moving, or hot vehicle parts.

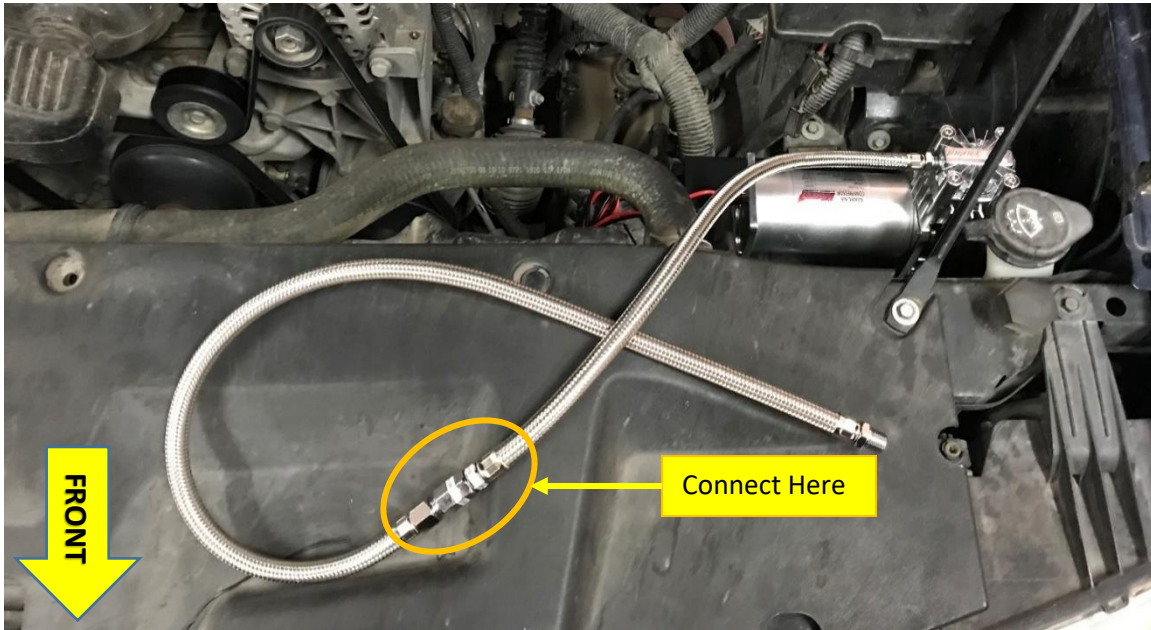


Figure 11 – Leader Hose Extension Installed on Compressor Leader Hose

9.3. Attach Air Compressor Inlet Filter

- 9.3.1. Review included directions in Compressor package on remote Air Filter; select location on Vehicle where to mount Air Filter, or if desired, Filter housing may be attached directly to inlet on Compressor.
- 9.3.2. Pry-open plastic Air Filter housing and install foam Filter inside. Attach fittings for Filter to end of Air Compressor and Filter housing. Follow instructions included in Compressor package.

NOTE: Air Filter Tubing is rigid and may be difficult to install over Barb Fittings; if necessary, use Hair Dryer, Candle, or Heat Gun at a safe distance to soften end of Air Tubing and place over Fitting. Do not bend Tubing excessively and cause it to kink; use even heat if necessary, to bend Tubing sharply.



Figure 12 – Air Compressor remote Air Filter and Tubing (shown without Air Compressor)

9.4. Passenger Side and Driver Side Brackets Installation

- 9.4.1. Locate OE Tow Hook Bolts (or holes if no OE Tow Hooks) towards front of each frame rail.
- 9.4.2. Remove front-most bolt on frame rail, as shown in Figure 13 below, labeled "1"



Figure 13 – Frame Attachment Points (Passenger Side of frame shown)

- 9.4.3. IF **EQUIPPED** WITH OE TOW HOOKS, Reuse OE Tow Hook Bolt to secure Bracket to outside of frame rail.
- 9.4.4. IF **NOT EQUIPPED** WITH TOW HOOKS, Insert BOLT-TH into frame rails from front of vehicle and ensure threads are protruding to outside of vehicle, as shown in Figure 14 below.

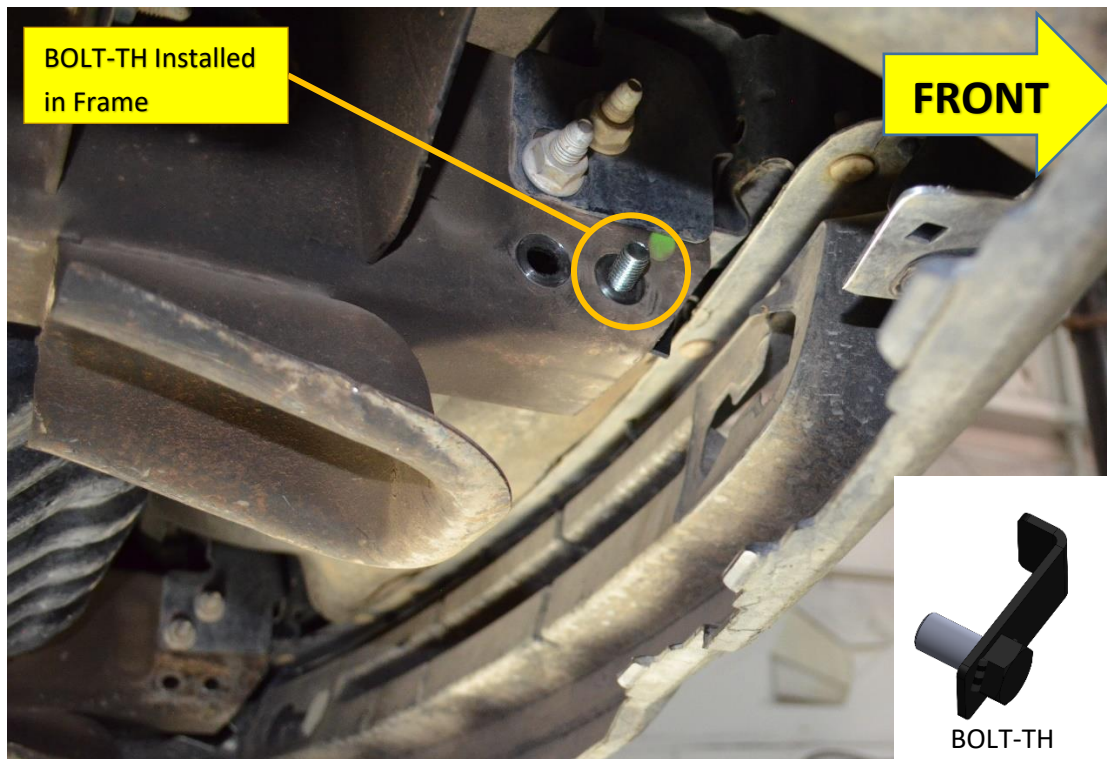


Figure 14 – BOLT-TH Installed in vehicle without OE Tow Hooks (Shown in Passenger Side frame rail)



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- 9.4.5. Hang GM1500-BRKT-PA from BOLT-TH or OE Tow Hook Bolt.
- 9.4.6. Verify GM1500-BRKT-PA aligns with large rear hole labeled "2", per above figure 13.
- 9.4.7. Insert GM1500-SPCR into frame hole labeled "2", *from inside* of frame rail (i.e., side facing engine).
- 9.4.8. Using H5, H6, H7 & H8 mount rear of Bracket to frame.

NOTE: H5 Washers are inserted on *inside* of frame rails (i.e., side of frame facing engine)



Figure 15 – Bracket Installed to Frame Rail (Shown on Passenger Side frame rail with Tow Hook Bolts)

9.4.9. Repeat procedure on Driver side of the vehicle, using GM1500-BRKT-DR



Figure 16 – Frame Rail Attachment Points (Driver Side of frame shown)



Figure 17 – Bracket Installed to Frame Rail (Shown on Driver Side frame rail with Tow Hook Bolts)

9.5. Middle Plate Bracket Assembly Installation

- 9.5.1. Prepare H1, H2 & H3 for installation of GM1500-BRKT-MD; total of six (6) Carriage Bolts, Washers, Nuts.
- 9.5.2. Loosely attach one (1) Carriage Bolt w/ Nut to center hole in GM1500-BRKT-MD, as circled in Figure 19.
- 9.5.3. Raise Bracket into place by sliding Bolt into open slot of GM1500-BRKT-DR, as circled in Figure 18.

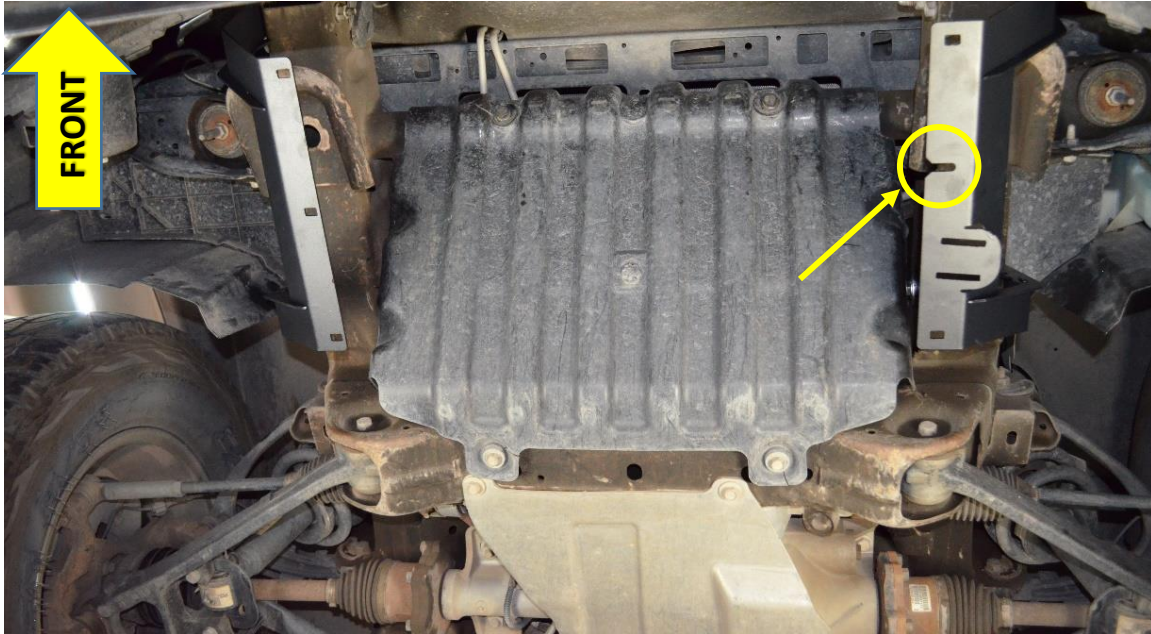


Figure 18 – Underside of Vehicle, with Brackets Mounted

- 9.5.4. While bracket is hanging from support Bolt, install remaining five (5) Bolts, Washers and Nuts loosely.
- 9.5.5. Ensure Washers are *NOT* accidentally installed/sandwiched between Brackets.
- 9.5.6. **Tighten all mounting hardware to 75 in-lbs.**



Figure 19 – Air Tank and Air Horn Driver Assembly installed (shown in vehicle)

9.6. Connect Air Compressor Leader Hose Extension to Air Tank

- 9.6.1. Apply two small drops of [Kleinn Air Horn Juice](#) to each male pipe thread.
- 9.6.2. Connect Compressor Leader Extension Hose to the Air tank using the last available port; see Fig 20.

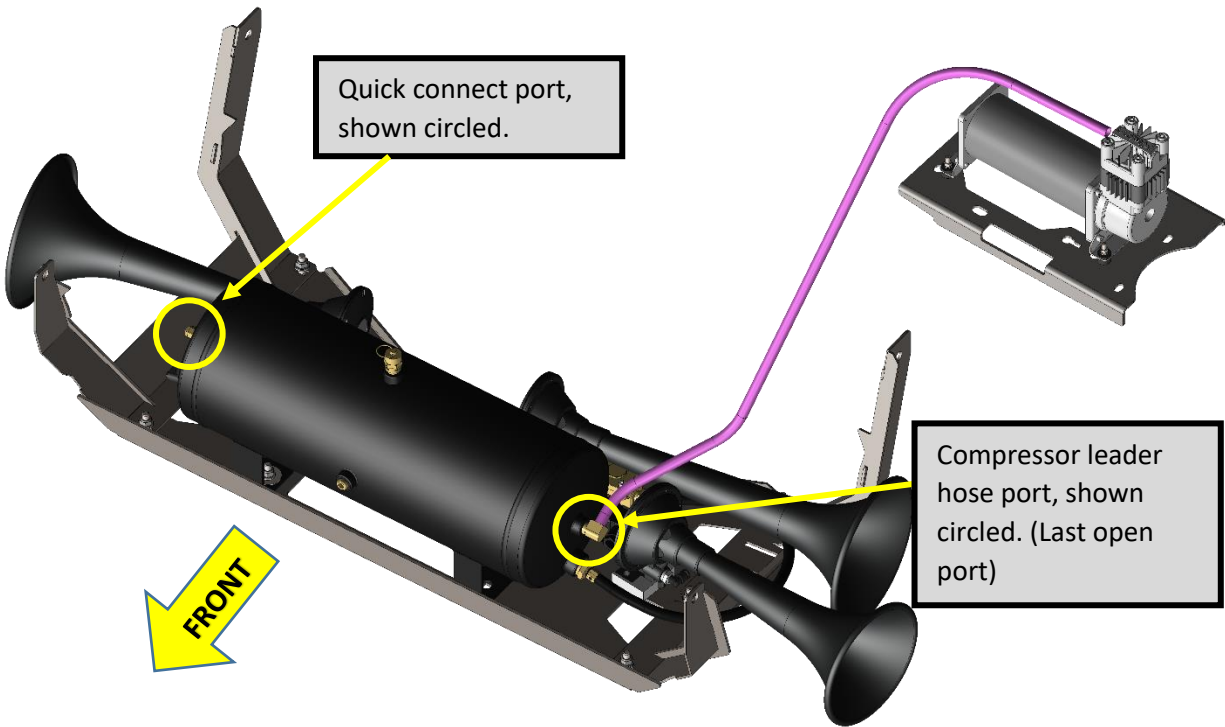


Figure 20 – Air Compressor Leader Hose Extension to Air Tank port

9.7. Connect Remote Quick Connect Kit to Vehicle

- 9.7.1. Route and attach Quick Connect Coupler Kit to vehicle, as desired using attachment bracket and self-drilling fasteners, supplied in Coupler package.
- 9.7.2. Use supplied 1/4" Air Tubing and attach to port shown above in Figure 20.

Some optional locations include under hood, near grill, behind bumper, in bed rail, etc.



Figure 21 – Example of Quick Connect Coupler Installed inside Rear Fender Well

9.8. Attach Trumpets to Air Horn Drivers

- 9.8.1. Install trumpets into Air Horn Drivers and tighten them snugly, per below order; see Figures 22/23.
1. Medium Trumpet (Passenger Side)
 2. Long Trumpet (Driver Side)
 3. Short Trumpet (Driver Side)
- 9.8.2. Position Trumpets to maintain a minimum 1/4" of clearance between vehicle and kit brackets.
- 9.8.3. With Trumpets positioned, **torque Air Horn Driver hardware to 75 in-lbs.**



Figure 22 – Installation Orientation of Medium Trumpet (Shown in vehicle on Passenger Side)

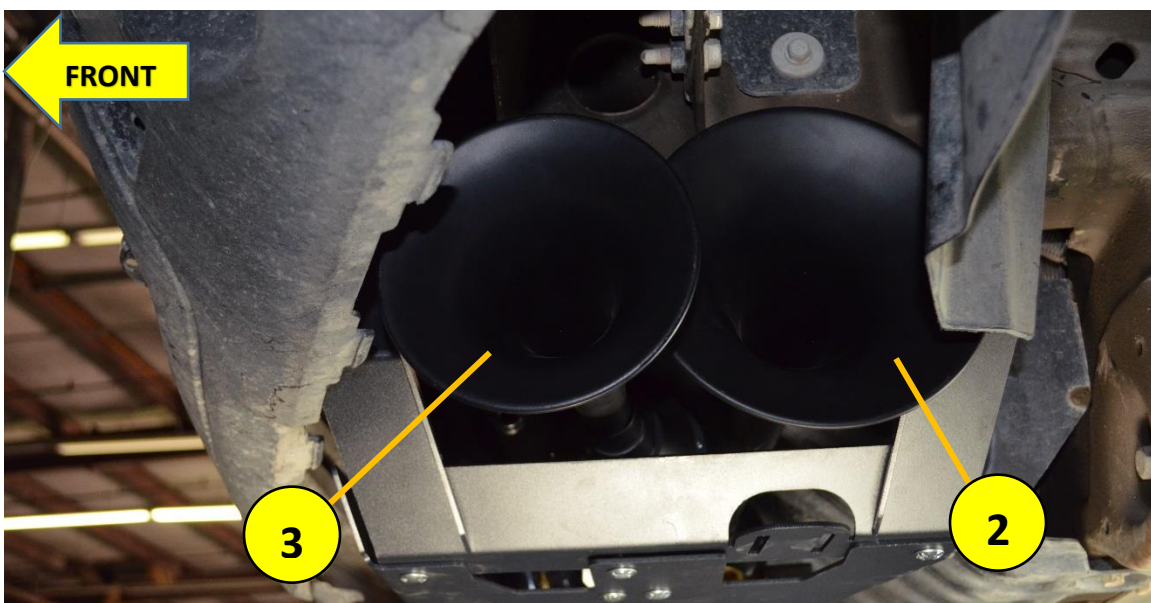


Figure 23 – Long and Short Trumpets Installed (Shown in vehicle on Driver Side)



Figure 24 – Trumpets and Kit Installed (as viewed under vehicle looking forward)

End of Section



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10. Initial Testing of Kit

10.1. Reconnect Vehicle Battery(s)

CAUTION: Before connecting vehicle battery(s), verify all wiring is properly connected and no shorts exists. Use of Multi-Meter, or Test Light is recommended to check continuity of all connections.

10.2. Test Air Compressor

- 10.2.1. Turn vehicle ignition to on position and allow compressor to fill Air Tank. Initial fill may take approximately 1.5-3 minutes; Air Compressor should shut off automatically once full pressure is achieved.
- 10.2.2. If compressor runs excessively (i.e., 5 minutes or more), disconnect electrical power to Air Compressor and listen for air leaks in system. Repair any problems and retest; contact Kleinn technical support if problem persists.
- 10.2.3. Inspect all air line connections (i.e., Air Tank fittings, Quick Connect fittings, Air Horn fittings, etc.) for leaks by using a soap and water solution sprayed directly onto fittings
- 10.2.4. System must be pressurized or at least Air Compressor running
- 10.2.5. If an air leak is found:
- 10.2.6. Safely release air pressure from system (i.e., slowly open drain valve)
- 10.2.7. Disassemble leaky connection, re-seal and reinstall fittings as needed

10.3. Test Train Horns

- 10.3.1. Allow Air Compressor to run and shut-off automatically (i.e., Air Tank is full)
- 10.3.2. Verify all tubing and electrical wire is securely fastened to vehicle, brackets, or kit parts; if necessary, use extra zip ties to hold tubing and wire in place
- 10.3.3. Ensure all nearby persons have adequate hearing protection and provide courtesy warning to neighbors or others in vicinity

WARNING: NEVER operate train horns with ears close to trumpets or in an enclosed space without substantial hearing protection (i.e., > Ear Plugs and Ear Muffs) for all persons closer than 100 feet from vehicle. Never operate train horns outdoors when persons are near vehicle without adequate hearing protection.

- 10.3.4. Briefly activate Horns by pressing Horn Button for one (1) second; repeat three (3) times with a short rest period between (i.e., 1-3 seconds)
- 10.3.5. Horns should sound as expected and be loud; [click to listen to example 230 Kit](#)
- 10.3.6. Horn sound/loudness will taper quickly as Air Tank loses pressure
- 10.3.7. Allow Air Compressor to refill tank, if needed and activate Horns for longer three (3) second period to ensure Horns are functioning properly.

10.4. Test Quick Connect Coupler

- 10.4.1. Allow Air Compressor to refill tank, if needed
- 10.4.2. Attach supplied INF-1 inflator kit to Quick Connect Coupler and verify adequate air pressure is available
- 10.4.3. Test fill tires on vehicle, bicycle, etc.
- 10.4.4. Use Air Blow Gun
- 10.4.5. Use Air Impact Gun

End of Section



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11. General Operation

11.1. Compressor Operation

WARNING: NEVER operate Air Compressor above its MAXIMUM PRESSURE RATING (see label on body). Operation exceeding maximum pressure will damage Compressor and potential Air System failure.

- 11.1.1. Kleinn's Oil-Less Compressor is equipped with an automatic thermal overload protection circuit, designed to protect air compressor from overheating and permanent damage.
- 11.1.2. Automatic thermal overload protector will automatically reset after 30 minutes.
- 11.1.3. To prevent discharge of vehicle's battery and for best performance, keep vehicle's engine running while using Air Compressor for any prolonged use (i.e., filling tires, using air tools, etc.).

11.2. Horn Operation

- 11.2.1. Allow Air Compressor to run until it shuts off automatically (i.e., Air Tank is full), or for at least one minute in between horn activations.
- 11.2.2. Press Horn Button to activate Horns
- 11.2.3. Horn sound/loudness will taper quickly as Air Tank loses pressure.
- 11.2.4. Horns should sound for 3-7 seconds depending on kit and tank size

WARNING: NEVER operate train horns with ears near trumpets or in an enclosed space without [hearing protection](#) (i.e., > Ear Plugs/Muffs) for all persons closer than 100 feet from vehicle. Never operate train horns outdoors when persons are near vehicle without hearing protection.

End of Section

12. Routine Maintenance

Perform following steps at least once during recommended intervals.

- 12.1. Yearly, or every 12000 miles verify all mounting fasteners are properly torqued; applying witness marks across fasteners and mounting parts is good practice to quickly ensure fasteners have not moved.
- 12.2. Yearly, or every 12000 miles inspect OE wiring, tubing, cables, etc. where Kit parts may touch, to [verify no abrasion or rubbing](#).
- 12.3. Yearly, or every 12000 miles remove all road grime and mud from mounting brackets and kit parts using clean water from a garden hose; pay special attention to corners where dirt may collect. Touch up all paint chips using automotive grade enamel in either spray, or brush form.

NOTE: High-pressure washers may damage part finishes and *must* be used with care. Do this more frequently if traveling regularly off-road, or in winter climates with road salts.

- 12.4. Yearly, or every 12000 miles check electrical and air fitting connections and wires for abrasion, corrosion, or other damage. Replace damaged components.

NOTE: if system runs continuously or turns on unexpectedly, leaks or intermittent electrical connection may be present.

- 12.5. Monthly, or every 10 hours of compressor run time, drain moisture from Air Tank using Drain Valve installed at bottom of Tank.

WARNING: Failure to regularly drain Air Tank may result in corrosion inside Tank and possible failure in Tank or Air Tubing, causing injury.

- 12.6. Yearly, or every 12000 miles clean, or replace Air Compressor Air Filter element. Replacement frequency depends on operating frequency and conditions of environment (i.e., daily use requires more frequent changes). Order replacement filters at [Kleinn.com](#).

NOTE: NEVER lubricate or add liquids to Compressor

End of Section



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13. Warranty Information

Thank you for purchasing this GM1500-230. Shall you experience any unexpected problems during installation or have problems with any part at any time please contact Kleinn support.

KLEINN MANUFACTURER LIMITED DEFECT WARRANTY:

Kleinn Automotive Air Horns warrants this product to the end-user, when properly installed and under normal conditions of use, to be free from defects in workmanship and materials for a period of one year from the provided date of purchase, to the original purchaser of the product. This warranty does not cover abuse, operation in a manner inconsistent with the product's design, or damage resulting from exposure to the elements. If the defect is considered "under warranty", Kleinn will, at its option, repair or replace the product free of charge to the original purchaser. Kleinn is not liable for any installation charges, loss or damage of any kind incurred in the replacement or repair of any warranted product.

End of Technical Manual

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