



RAPTOR-734/230 INSTALLATION MANUAL





RAPTOR-734/230

Installation and Operation Manual

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RAPTOR-734/230

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2. How to Use this Manual

2.1. 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
- **Zoom IN** on pictures by pressing "CTRL and +" at same time on PC, or pinch in on smart devices
- **Zoom OUT** on pictures by pressing "CTRL and -" at same time on PC, or pinch out on smart devices

2.2. Your Kit SKU Number and this Manual

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

- 2.2.1. **RAPTOR-230** (i.e., 230 Train Horn with On-Board Air System)
- 2.2.2. **RAPTOR-734** (i.e., 730 Train Horn with On-Board Air System)
- 2.2.3. **RAPTOR-OBA** (i.e., On-Board Air System)

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.

2.3. 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.





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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.

3. Safety First

3.1. Before You Start

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.

3.2. Know these Special Callouts

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



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4. Application Chart

4.1. 100% Direct Bolt-On Vehicle List

RAPTOR-734/230 is a 100% direct bolt-on aftermarket product for Ford 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 |
|-----------|--------|-------|--------|------------|-------|
| 2017-2019 | RAPTOR | 4WD | 3.5L | CREW CAB** | 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.

4.2. **Excluded Vehicles

RAPTOR-734/230 is NOT compatible with following FORD vehicles:

4.2.1. Super Cab or Standard Cab models

4.3. Aftermarket Product Compatibility

NOTE: Before installing this product on a vehicle with any aftermarket parts attached in regions shown in section 5.1, thoroughly review this manual to verify necessary mounting points and overall space exists. At discretion of end-user/installer, included Brackets/components may require modifications to attach to vehicles with aftermarket parts; THIS VOIDS WARRANTY OF SYSTEM.

4.3.1. This kit has been designed to be compatible with leading manufacturers of aftermarket power truck steps, such as Amp Research Power Steps[®], which attach to inside of Rocker Panel.

4.3.2. This kit has NOT been designed or tested for use with leading manufacturers of aftermarket truck steps, which attach to frame (i.e., nerf bars, off-road rocker panel protection, etc.).

4.3.3. This kit has NOT been designed or tested for use with aftermarket exhaust systems.

4.3.4. This kit has NOT been designed or tested for use with aftermarket suspension systems.



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5. Installation Overview

5.1. Kit Layout and Systems Location(s)

RAPTOR-734/230 consists of following sub-systems, located on vehicle, as follows:

| ITEM | DESCRIPTION | MOUNTING LOCATION | APPROX. INSTALL TIME |
|------|--|---|----------------------|
| 1 | 730 Series Large, Medium, and Small Air Horns with Air Solenoid (734-KIT) 230 Series Large, Medium, and Small Air Horns with Air Solenoid (230-KIT) | Outside Driver side frame rail, under rear door. | 2+ Hours |
| 2 | 3 Gal. Air Tank (ALL) | Outside Passenger frame rail, under cab, in between front/rear doors. | 2+ Hours |
| 3 | 6350RC Air Compressor (230-KIT) 6450RC Air Compressor (734-KIT), (OBA-KIT) | Outside Passenger frame rail, under rear door. | 1-2 Hours |

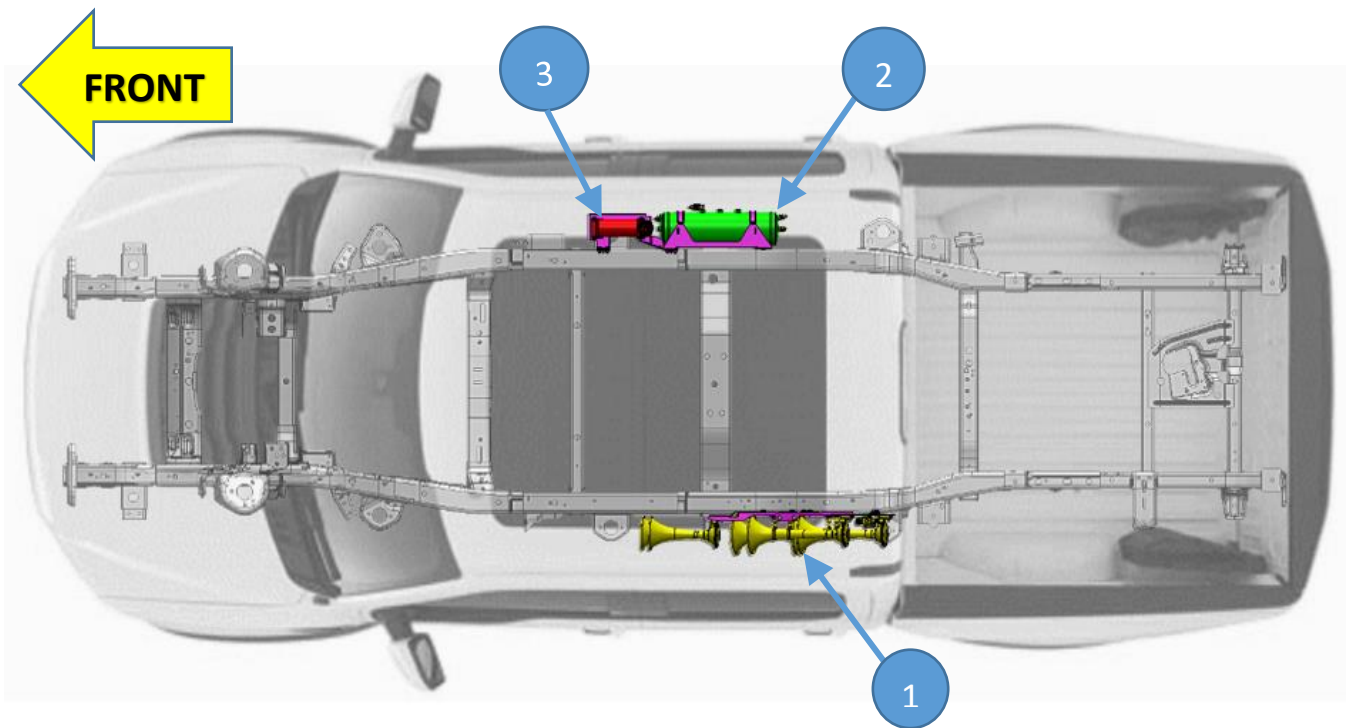


Figure 1 - Top View showing Kit Layout (2018 Crew Cab Shown)



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5.2. Approximate Installation Time

RAPTOR-734/230 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:

- **6-12 Hours**
-

5.3. ***Quick Install Outline

For person(s) with experience installing Kleinn bolt-on kits, RAPTOR-734/230 can be installed in an order similar to below:

1. Route Wiring, install Relay, and install Horn Switch
2. Bench assemble Fittings to Air Tank
3. Form Tank Straps
4. Mount Ore-Locks and Air Horn Driver hardware to Horn Brackets
5. Install Air Tank bracket
6. Install Compressor bracket
7. Install Compressor & Compressor Air Filter
8. Install Air Tank with fittings installed
9. Connect air lines and wiring
10. Bolt in Horn brackets
11. Bolt on Ore bracket
12. Attach Air Horn Drivers to Brackets
13. Connect wiring and air lines
14. Install Trumpets into Horn Drivers & Ore mounts
15. Install Quick Connect Coupler and route Air Tubing
16. Test System and adjust, as needed



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6. List of Tools and Supplies

6.1. Standard Tool List (Required)

- 6.1.1. Basic mechanic's 3/8" drive socket sets with extensions
 - Inch Size Sockets (1/4" – 1" Hex)
 - Metric Size Sockets (6mm – 20mm Hex)
- 6.1.2. Basic mechanic's combination wrenches (box/open-end)
 - Inch Size Wrenches (1/4" – 1" Hex)
 - Metric Size Wrenches (6mm – 20mm Hex)
- 6.1.3. Basic mechanic's screwdriver set (Philips, Flat Head)
- 6.1.4. Diagonal Cutter/Wire Cutter Pliers
- 6.1.5. Wire Strippers
- 6.1.6. Wire Terminal Crimpers
- 6.1.7. Slip-Joint Pliers
- 6.1.8. Utility Knife, or Utility Razor blade
- 6.1.9. Magnetic retrieval tool; magnetic end no larger than 3/8" in diameter
- 6.1.10. (Inch) Ball-end hex drivers/wrenches; long reach preferred (i.e., 6" min.)

6.2. Special Tool List (Recommended)

- 6.2.1. 10-100 ft.-lb. torque wrench
- 6.2.2. 20-150 in.-lb. torque wrench
- 6.2.3. Multi-Meter for 12V DC electrical systems, or equivalent
- 6.2.4. 12V DC Test Light, or equivalent
- 6.2.5. Trim Panel Tool, for removing wiring push pins

6.3. Shop Consumables List (Recommended)

- 6.3.1. Quality Electrical tape
- 6.3.2. Di-electric grease for electrical connections
- 6.3.3. Heat Shrink tubing for electrical connections
- 6.3.4. Blue Loctite (i.e., Loctite PN 242), or equivalent
- 6.3.5. Sand Paper, or Wire Brushes for installing ground wires
- 6.3.6. Extra plastic zip ties > 6" long
- 6.3.7. Extra NPT sealant (i.e., Kleinn Air Horn Juice, Teflon tape, etc.)
- 6.3.8. Touch-up paint for frame/chassis
- 6.3.9. Typical cleanup supplies



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7. Parts List

7.1. Parts List Covers following SKU Numbers





- 7.1.1. **RAPTOR-230** (i.e., 230 Train Horns)
- 7.1.2. **RAPTOR-734** (i.e., 730 Train horns)
- 7.1.3. **RAPTOR-OBA** (i.e., On-Board Air System)

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.

- 7.1.4. Review pre-packaged items (i.e., train horn box, air compressor, air tank, etc.)
- 7.1.5. Review Air Fittings and Tubing
- 7.1.6. Review Wiring and Accessories
- 7.1.7. Review Bolt-On Mounting Brackets
- 7.1.8. Review Hardware/Fasteners

7.2. 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 | 6450RC 734 KIT ONLY OBA KIT ONLY | 6450RC Compressor Kit, with included hardware, and remote air supply line |  |
| 1 | 1 | 6350RC 230 KIT ONLY | 6350RC Compressor Kit, with included hardware, and remote air supply line |  |
| 2 | 1 | 730 734 KIT ONLY | 730 Series Horn Kit, with included solenoid/valve, and 1/2" Air Tubing, 10 ft. long |  |
| 2 | 1 | 230 230 KIT ONLY | 230 Series Horn Kit, with included solenoid/valve, and 1/4" Air Tubing, 10 ft. long |  |



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7.3. Air Fittings and Related Items

| ITEM | QTY | PART NUMBER | DESCRIPTION | PICTURE |
|------|-----------|---|---|---|
| 3 | 1 | 6353RT | Air Tank, 9-Port |  |
| 4 | 1 | 52835 (view location on Air Tank) | 1/4" NPT, Drain Valve |  |
| 5 | 1 | 52175 (view location on Air Tank) | 1/4" NPT, 175 PSI Safety Valve |  |
| 6 | 3 | 50040 (view location on Air Tank) | 1/4" NPT Hex Plug |  |
| 7 | 1 | 51214L (view location on Air Tank) *734 KIT ONLY | 1/4" NPT X 1/2" Compression Fitting, 90 Deg Elbow |  |
| 8 | 1 | 2151 (view location on Air Tank) | 1/4" NPT Pressure Switch |  |
| 9 | 1 (2)* | 51414L (view location on Air Tank) *(2) Included with 230 KIT ONLY | 1/4" NPT X 1/4" Compression Fitting, 90 Deg Elbow |  |



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| | | | | |
|----|---|-----------------------|--|--|
| 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 |  |



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7.4. Electrical Small Components and Related Items

| ITEM | QTY | PART NUMBER | DESCRIPTION | PICTURE |
|------|-----|-----------------------------|--|---|
| 14 | 1 | 320 | Terminator – Nickel Plated Remote Horn Button |  |
| 15 | 1 | WIRE KIT | Full Wire Kit, with electrical connectors and zip ties |  |
| 16 | 1 | 1/4" WIRE LOOM, 20 ft. Long | 1/4" Wire loom for electrical routing |  |
| 17 | 1 | 1/8" WIRE LOOM, 10 ft. Long | 1/8" wire loom for electrical routing |  |



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7.5. Bolt-On Mounting Brackets & Special Hardware

| ITEM | QTY | PART NUMBER | DESCRIPTION | PICTURE |
|------|-----|---|------------------------------|---|
| 18 | 1 | RAPTOR-101 (Go to Install Section) | COMPRESSOR BRACKET |  |
| 19 | 1 | RAPTOR-201 (Go to Install Section) | TANK BRACKET |  |
| 20 | 2 | RAPTOR-202 (Go to Install Section) | AIR TANK STRAP |  |
| 21 | 2 | RAPTOR-203 (Go to Install Section) | NUT PLATE |  |
| 22 | 1 | RAPTOR-206 (Go to Install Section) | SKID PLATE |  |
| 23 | 1 | RAPTOR-301 (Go to Install Section) | MAIN HORN BRACKET |  |
| 24 | 1 | RAPTOR-302 (Go to Install Section) | MEDIUM HORN BRACKET |  |
| 25 | 1 | RAPTOR-303 (Go to Install Section) | LARGE HORN ORE MOUNT BRACKET |  |



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7.6. Hardware/Fasteners

| ITEM NO. | PART TYPE | PART SIZE | QTY. | WHERE USED |
|----------|---|------------------------|------|--|
| 1 | FLAT WASHER, FENDER, ZINC-PLATED | 5/16" ID X 1.25" OD | 1 | HORN BRACKET (1) |
| 2 | FLAT WASHER, USS, ZINC-PLATED | 5/16" X .88" OD | 7 | HORN BRACKET (5) TANK BRACKET (2) |
| 3 | FLAT WASHER, SAE, ZINC-PLATED | 5/16" ID X 0.69" OD | 20 | HORN DRIVERS (6) HORN BRACKET (8) TANK BRACKET (3) COMPRESSOR BRACKET (3) |
| 4 | FLAT WASHER, SAE, ZINC-PLATED | 1/4" ID X 0.63" OD | 10 | TANK STRAPS (4) ORE LOCK MOUNTS (4) SKID PLATE (2) |
| 5 | HEX NUT, GRADE 2, ZINC-PLATED | 5/16"-18 | 16 | HORN DRIVERS (6) HORN BRACKET (8) TANK BRACKET (2) |
| 6 | HEX NUT, GRADE 2, ZINC-PLATED | 1/4"-20 | 4 | ORE LOCK MOUNTS (4) |
| 7 | LOCK WASHER, SPLIT LOCK, ZINC-PLATED | 5/16" | 20 | HORN DRIVERS (6) HORN BRACKET (8) TANK BRACKET (3) COMPRESSOR BRACKET (3) |
| 8 | LOCK WASHER, SPLIT LOCK, ZINC-PLATED | 1/4" | 10 | ORE LOCK MOUNTS (4) TANK STRAPS (4) SKID PLATE (2) |
| 9 | SOCKET HEAD CAP SCREW, ZINC-PLATED | 1/4"-20 X 1" LONG | 4 | TANK STRAPS (4) |
| 10 | PAN HEAD PHILLIPS SCREW, ZINC-PLATED | 1/4" X 20 X 0.75" LONG | 2 | NUT PLATE (2) |
| 11 | HEX BOLT, GRADE 2, ZINC-PLATED | 5/16"-18 X 1" LONG | 4 | COMPRESSOR BRACKET (2) TANK BRACKET (2) |
| 12 | KNURLED CARRIAGE BOLT, GRADE 8, ZINC-PLATED | 5/16"-18 X 0.75" LONG | 6 | TANK BRACKET (2) HORN BRACKET (4) |
| 13 | SQUARE NECK BOLT, GRADE 2, ZINC-PLATED | 5/16"-18 X 1.25" LONG | 6 | HORN DRIVERS (6) |
| 14 | SQUARE NECK BOLT, GRADE 2, ZINC-PLATED | 1/4"-20 X 1" LONG | 4 | ORE LOCK MOUNTS (4) |
| 15 | RUBBER TRIM ("NARROW U") | 9" LONG | 2 | TANK BRACKET (2) |
| 16 | RUBBER TRIM ("WIDE C") | 9" LONG | 2 | TANK STRAPS (2) |



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| | | | | |
|----|---|----------------------|---|---|
| 17 | KNURLED CARRIAGE BOLT, GRADE 8, ZINC-PLATED | 5/16"-18 X 1" LONG | 1 | HORN BRACKET (1) |
| 18 | SQUARE NECK BOLT, GRADE 2, ZINC-PLATED | 5/16"-18 X .75" LONG | 2 | HORN BRACKET (2) |
| 19 | HEX NUT, GRADE 8.8, ZINC-PLATED | M5 X 0.8 | 4 | COMPRESSOR (4) **INSIDE COMPRESSOR BOX |
| 20 | FLAT WASHER, DIN, ZINC-PLATED | M5 ID X 10 OD | 8 | COMPRESSOR (8) **INSIDE COMPRESSOR BOX |
| 21 | LOCK WASHER, SPLIT LOCK, ZINC-PLATED | M5 | 4 | COMPRESSOR (4) **INSIDE COMPRESSOR BOX |
| 22 | HEX BOLT, GRADE 4.6, ZINC-PLATED | M5 X 40 | 4 | COMPRESSOR (4) **INSIDE COMPRESSOR BOX |
| 23 | HEX BOLT, GRADE 2, ZINC-PLATED | 1/4"-20 X .75" LONG | 2 | SKID PLATE (2) |

End of Section

8. 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.

8.1. Relay and Fuse Diagram for Air Horn System

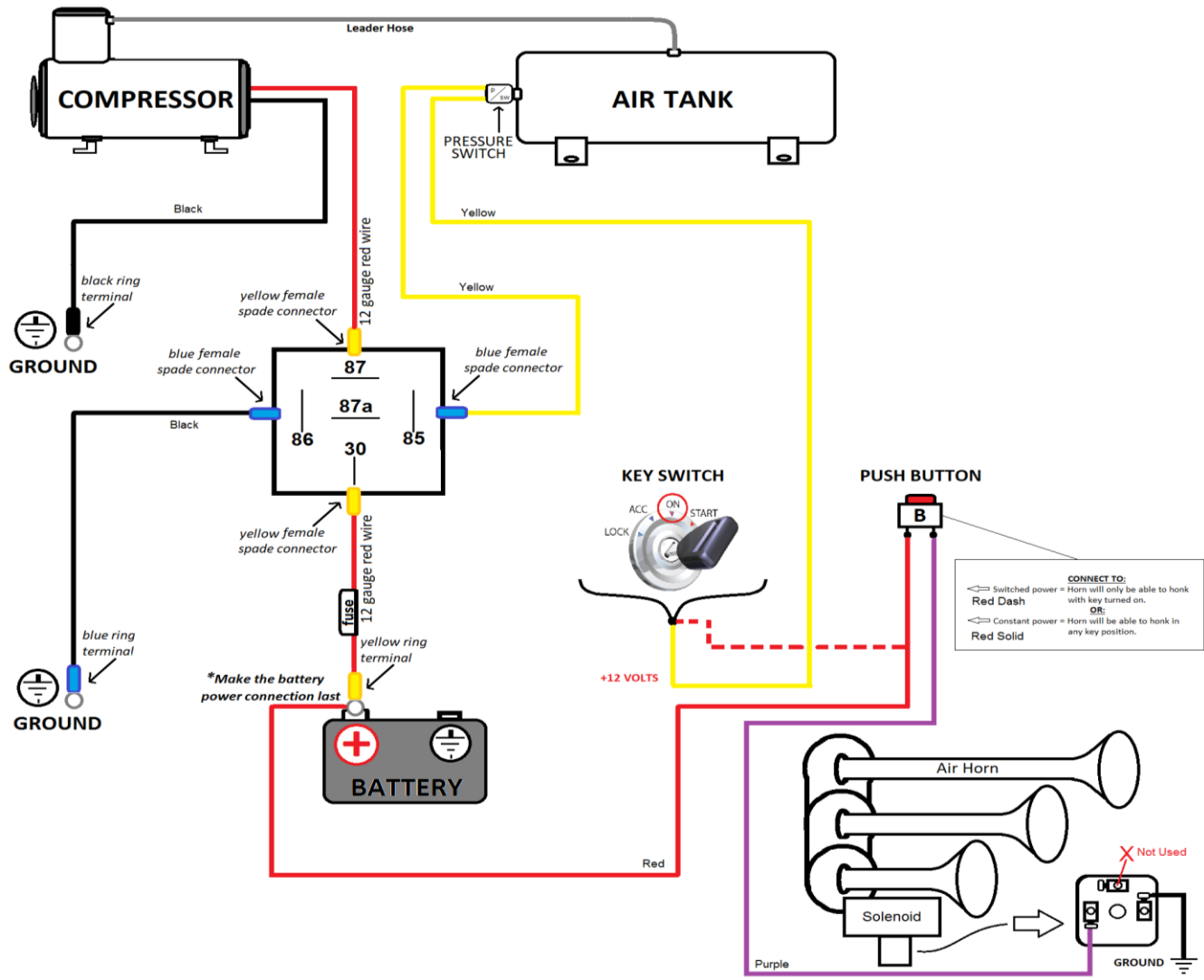


Figure 2 - Suggested Ignition Relay Diagram for 730/230/OBA

8.2. Suggested Wire Routing for Air Horn System

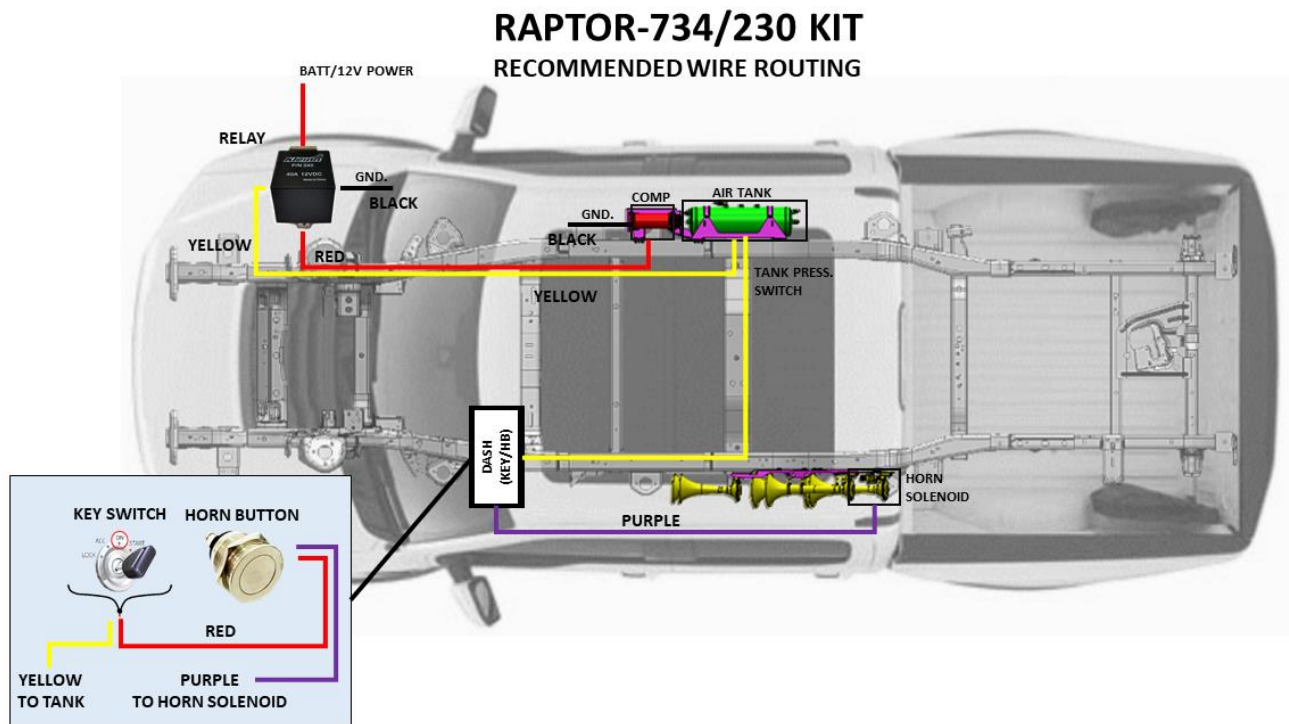


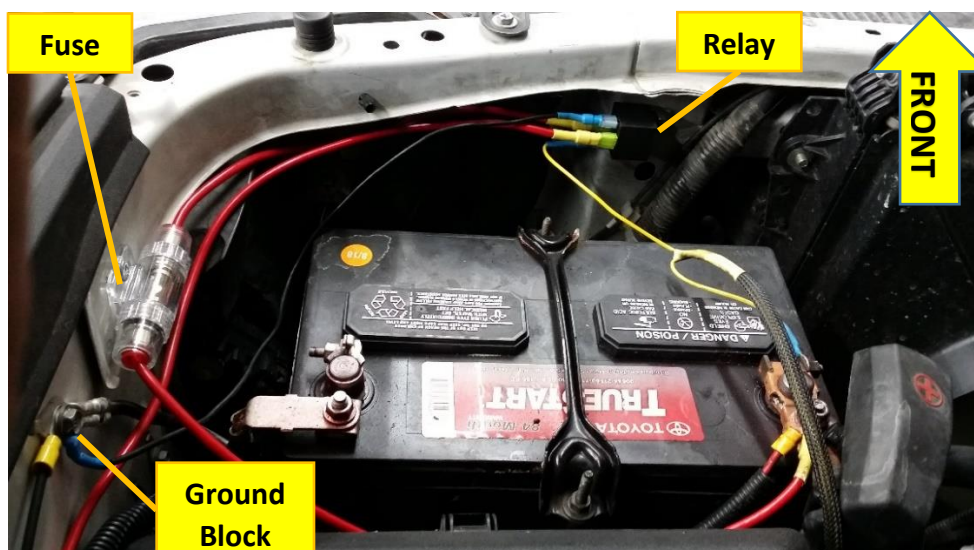
Figure 3 - Suggested Wire Routing for Horn, Air Compressor, and Pressure Switch

8.3. Disconnect Vehicle Battery(s)

8.3.1. Use special care if vehicle is equipped with any Auxiliary Auto Stop Battery. Consult Owner's Manual.

8.4. Connect Wiring to Relay(s) and Fuse(s), then Attach to Vehicle

8.4.1. Find a suitable location for supplied relay(s) and fuse(s). Shown below is an example location under hood next to battery and near grounding block. Use supplied self-tapping screws, as necessary.



Relay and Fuse Installation Example (2016 Tundra Shown)



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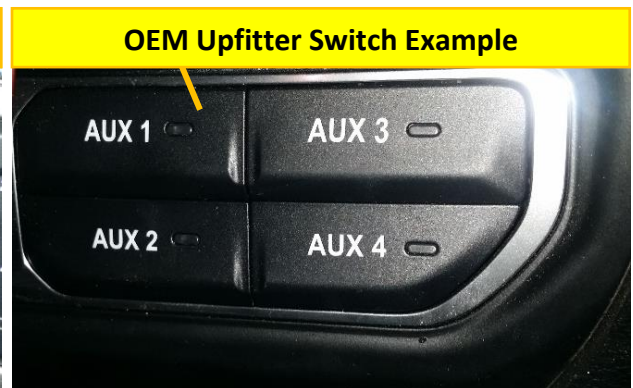
- 8.4.2. Insert all wiring into included wire loom and ensure loom is away from all sharp edges, hot vehicle parts (i.e., exhaust, engine, radiator), and fasten securely to vehicle using zip ties, or equivalent.

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

- 8.4.3. 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.

- 8.4.4. 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.



NOTE: FOR VEHICLES WITH FACTORY UPFITTER SWITCHES:

If vehicle is equipped with factory upfitter (i.e., auxiliary) switches, they may be used for Kleinn Air Horn kit; consult Owner's Manual, or dealership for further instructions on wiring and programming required.

- 8.4.5. 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.

8.5. [Connect partial length of wiring to Air Horn Solenoid\(s\)](#)

- 8.5.1. Vehicle space constraints may make it difficult to connect Air Horn Solenoid(s) in-vehicle. Review install location for available space; if desired, cut and connect a section of wiring to Solenoid(s) before installing into vehicle, then perform final connection once Air Horn assembly is installed.

NOTE: If connecting upgraded Solenoid Kit (BlasterMaster Pro), see instructions contained in package

8.6. [Connect partial length of wiring to Pressure Switch](#)

- 8.6.1. Vehicle space constraints may make it difficult to connect Air Tank Pressure Switch in-vehicle. Review install location for available space; if desired, cut and connect a section of wiring to Pressure Switch before installing Air Tank into vehicle, then perform final connection once Air Tank is installed.

End of Section

9. 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](#). Assemble ALL fasteners clean and dry using proper socket and box-end wrench. (Not including Air fittings)

9.1. Disassemble 730/230 Horn Kit from Box

9.1.1. Unpackage and fully disassemble included train horn kit; train horns must be separated to allow individual installation to bracketry.

9.2. Assemble Air Tank Fittings to Air Tank

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

9.2.2. Attach air fittings to tank, per below illustration, [Click Here to View Fittings List](#)

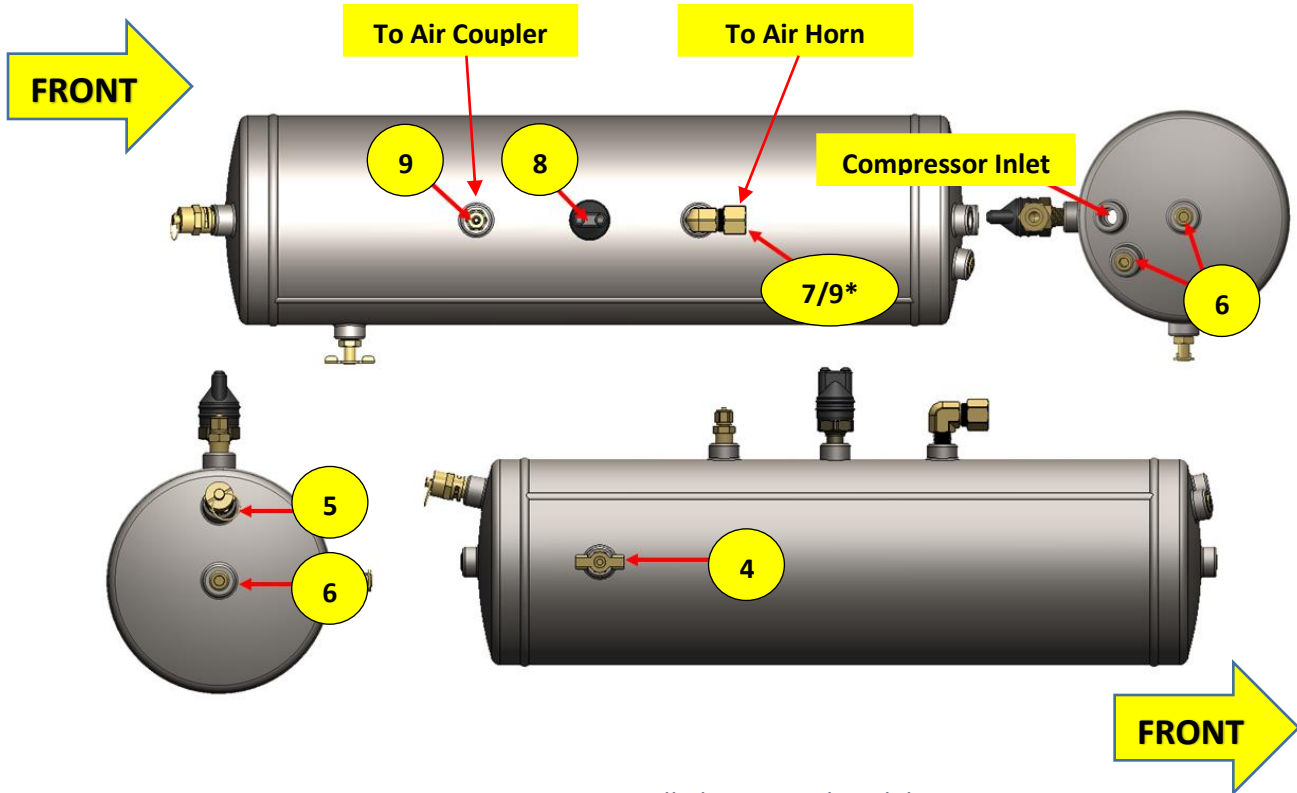


Figure 4 - Air Fittings installed in Air Tank with locations

9.2.3. 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 in above figure.

9.3. Attach Air Tank Straps (RAPTOR-202) to Tank Bracket (RAPTOR-201) and Form Straps

NOTE: Space constraints with Tank Bracket installed on vehicle makes accessing top Air Tank Strap mounting bolts difficult to achieve; therefore, it is recommended to follow below procedure. If long reach (i.e., minimum 6 inch) ball-nose hex drivers are available, Straps may be fully installed in vehicle.

- 9.3.1. Temporarily place Air Tank inside Tank Bracket, then attach both RAPTOR-202 Air Tank Straps to upper holes on RAPTOR-201, using [hardware](#) (2) #4, #8, #9., as shown in Figure 5 below.
- 9.3.2. To form straps around tank, ensure top bolts are hand tight, then grasp each strap and bend it around tank, as shown below. Once strap is formed, torque top bolt to 37 in-lbs and remove tank from Bracket, as shown in Figure 5 below.
- 9.3.3. Attach (2) Rubber strips #16 to RAPTOR-202 parts, as shown with green arrows in Figure 5 below.

NOTE: Straps should be aligned vertically, with bottom holes on RAPTOR-201 & RAPTOR-202 lining up.

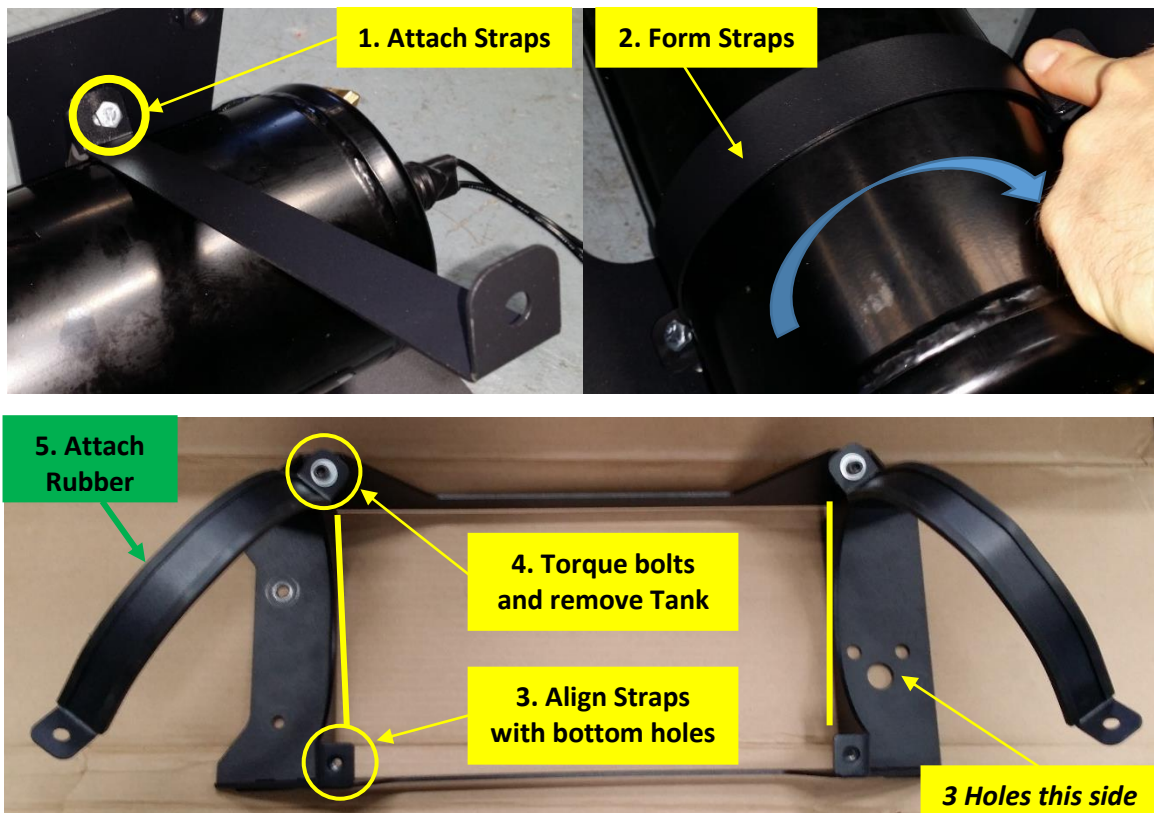


Figure 5 - RAPTOR-202 Tank Straps Formed and Attached (Shown without Air Tank and mis-aligned)

9.4. Ore-Lock to Brackets (RAPTOR-301, RAPTOR-302, RAPTOR-303) Installation

9.4.1. Using [hardware](#) #3, #5, #7, & #18, secure RAPTOR-303 to RAPTOR-301. Hand tighten fasteners only at locations shown circled in yellow in Figure 6 below.

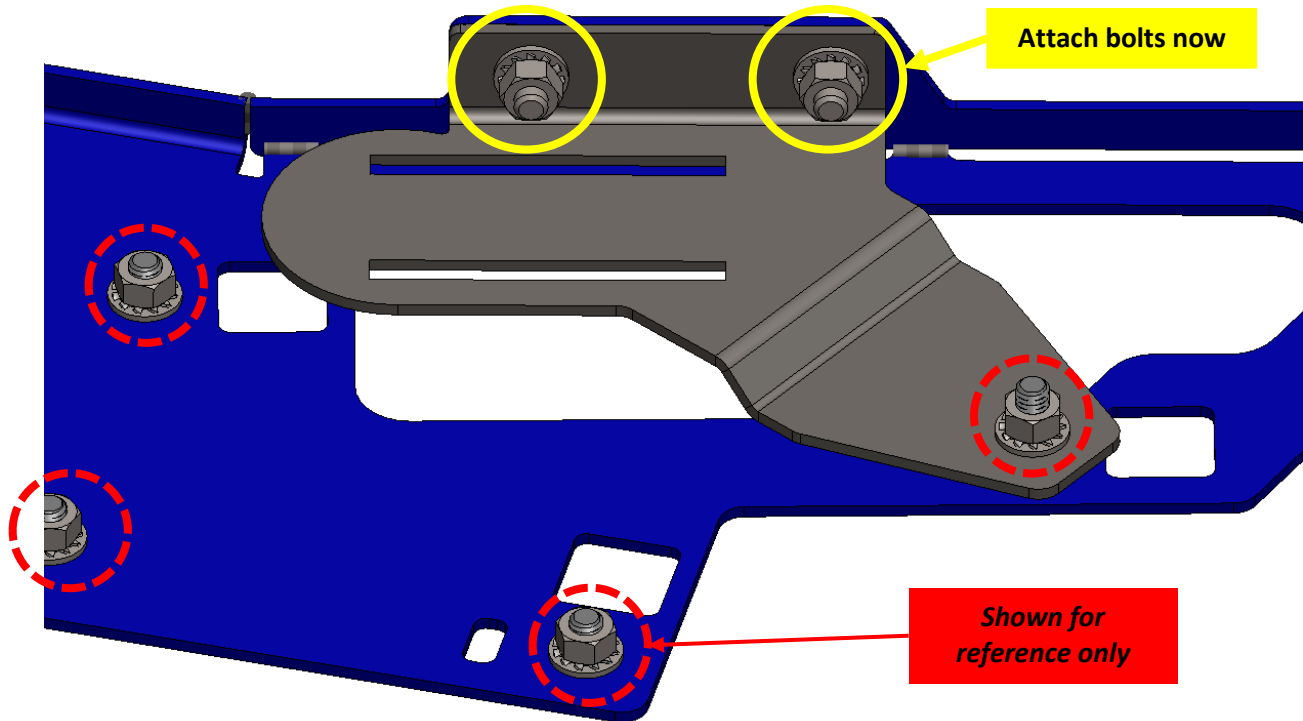


Figure 6 - RAPTOR-303 attached to RAPTOR-301

9.4.2. Remove Ore Locks from Air Horn package and discard their included hardware. Attach Ore Locks onto Medium and Large Horn Bracket using [hardware](#) #4, #6, #8, and #14, as shown circled in Figure 7 below.

NOTE: Ore Locks are included ONLY with 734 KIT (i.e., 730 Air Horns)

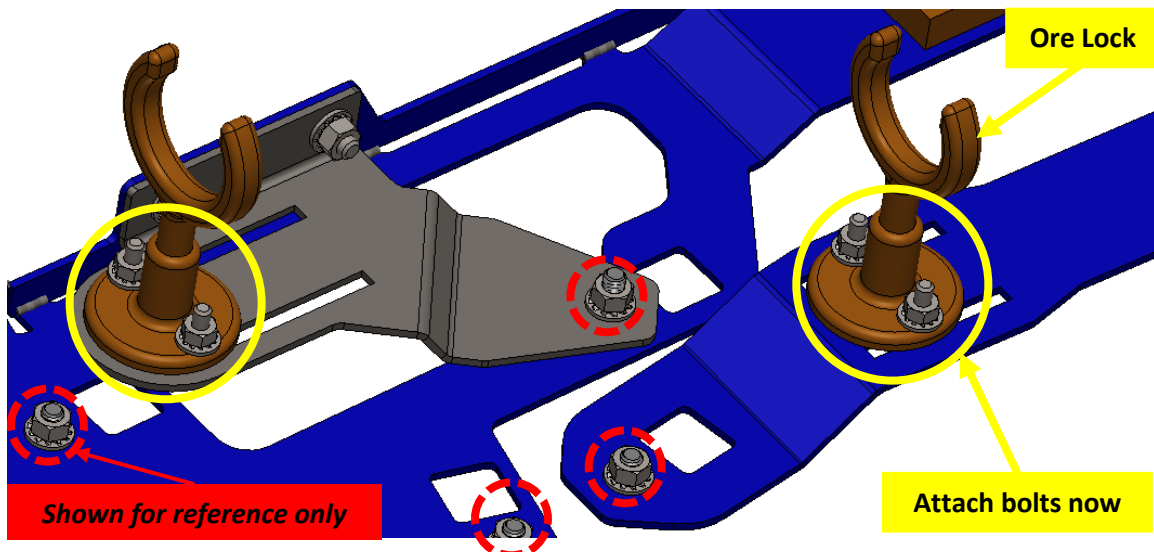


Figure 7 - Ore Locks attached to RAPTOR-301 and RAPTOR-303 (734 KIT ONLY)

9.5. Air Horn Driver Hardware Temporary Installation

NOTE: Space constraints between Air Horns Brackets and vehicle frame when installed make inserting Air Horn Driver hardware difficult to achieve; therefore, it is recommended to attach hardware before installing Brackets on frame.

- 9.5.1. Loosely attach [hardware](#) #3, #5, #7, & #13, to RAPTOR-301 and RAPTOR-302 Horn Brackets in locations shown circled in Figure 8 below. **Square Neck Bolt should be inserted on backside of Brackets, with remaining hardware above Brackets.**

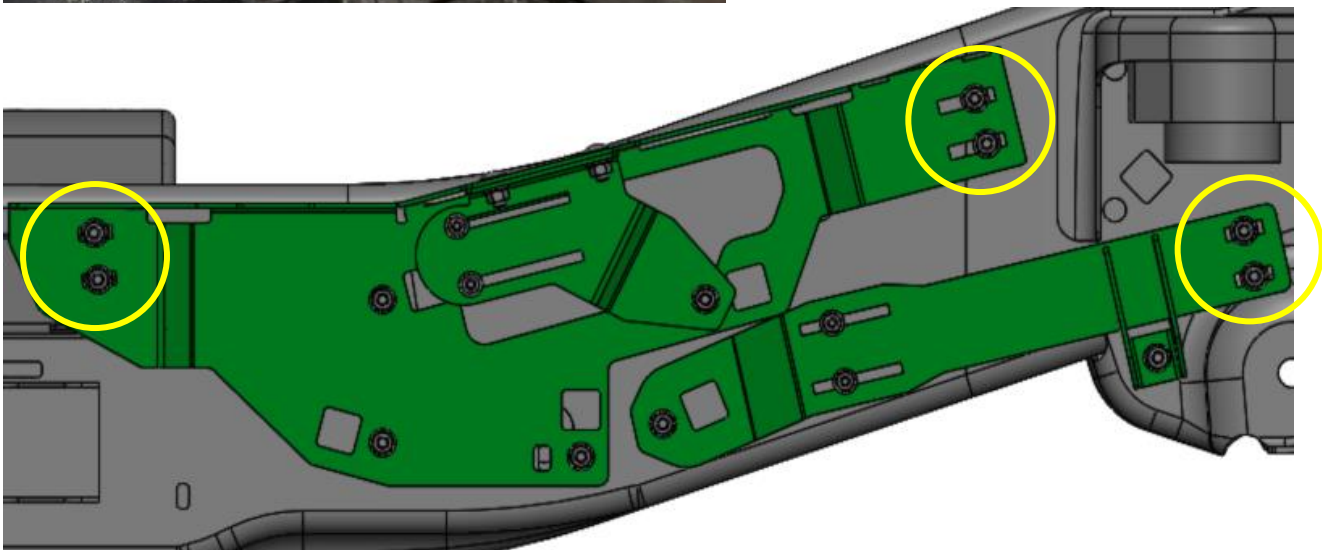


Figure 8 - RAPTOR-301, 302, 303 with Air Horn Driver Hardware circled (shown on frame)

10. On-Vehicle Mechanical Assembly Steps

Complete following steps *on vehicle*.

Raise vehicle off ground using appropriate vehicle lift, ramps, or jack stands, to improve ease of installation.

DANGER: Follow all safety precautions for raising vehicle and working beneath it; consult vehicle owner's manual.

NOTE: Any parts permanently removed from vehicle should not be discarded; store for future use if Kit is removed. Pre-soak ALL OEM vehicle fasteners with WD-40, PB-Blaster, etc. before attempting to loosen fasteners! This is especially critical on blind, threaded holes, where nuts/threads are not easily replaced.

CAUTION: All components installed in this kit should have a minimum of 1/4" of clearance from vehicle body.

10.1. Nut Plate (RAPTOR-203) Installation

10.1.1. Locate two large oval holes on passenger side frame rail, under front door, as shown in Figure 9 below.

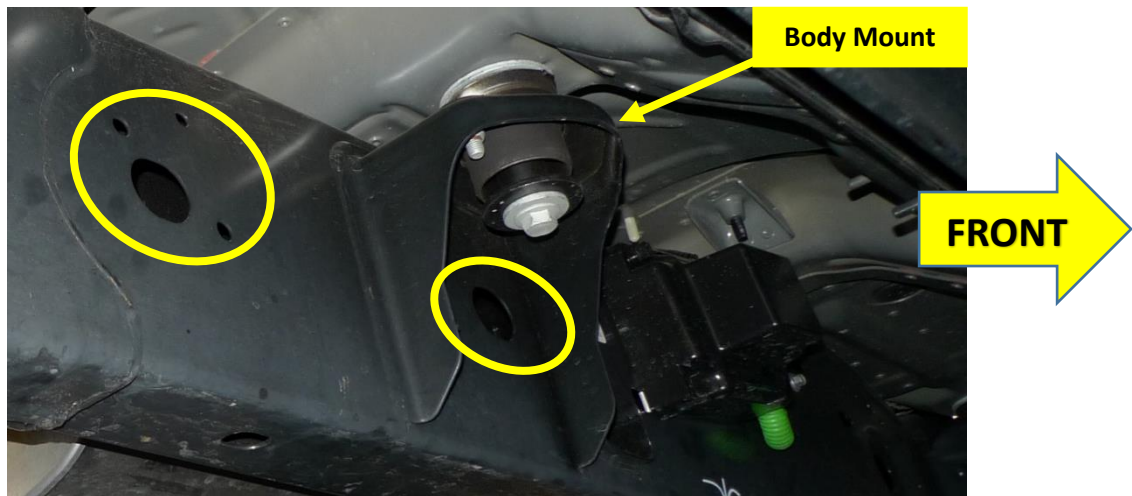


Figure 9 - Frame Hole Locations for RAPTOR-203; below front door

10.1.2. Locate two holes on same section of frame, under rear door, as shown in Figure 10 below.

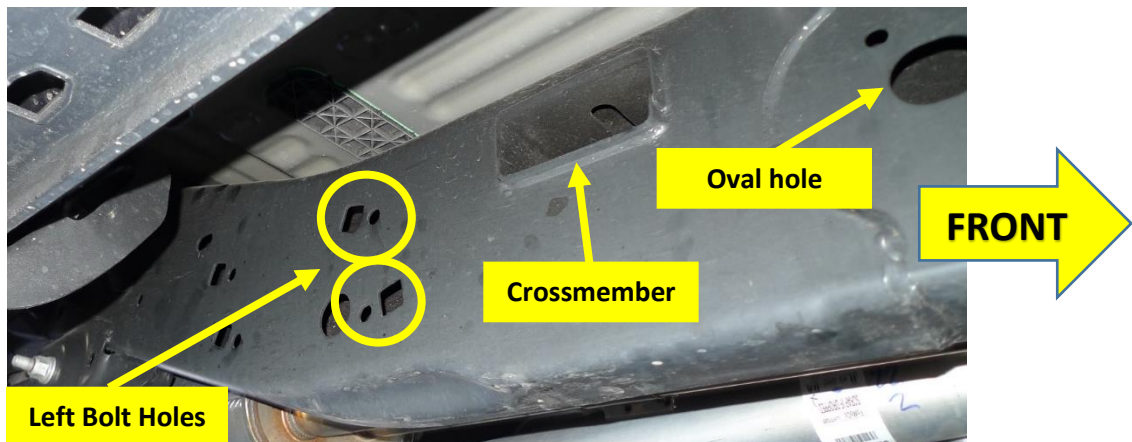


Figure 10 - Passenger Frame Rail Hole Locations, under rear door

10.1.3. Thread [hardware](#) #10 into RAPTOR-203, so Nut Plate can be held by screw. Do not thread bolt in fully.

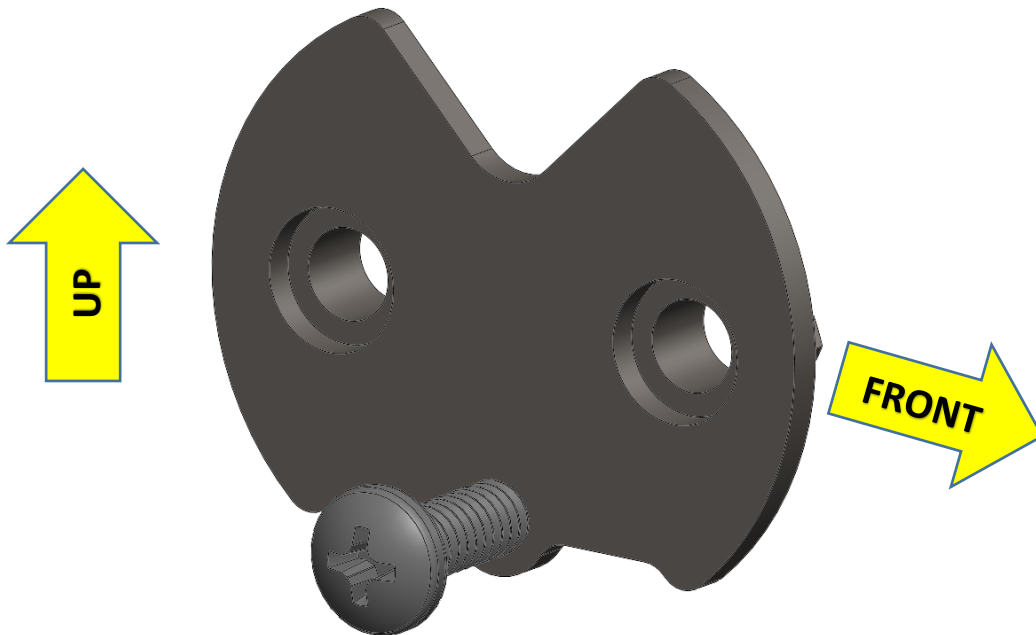


Figure 11 - RAPTOR-203 with #10 Inserted

10.1.4. Rotate both RAPTOR-203 (Nut Plate) through frame holes circled in **Figure 9** above. **Use care not to drop Nut Plate inside frame.** Follow Figure 12 below on insertion method.

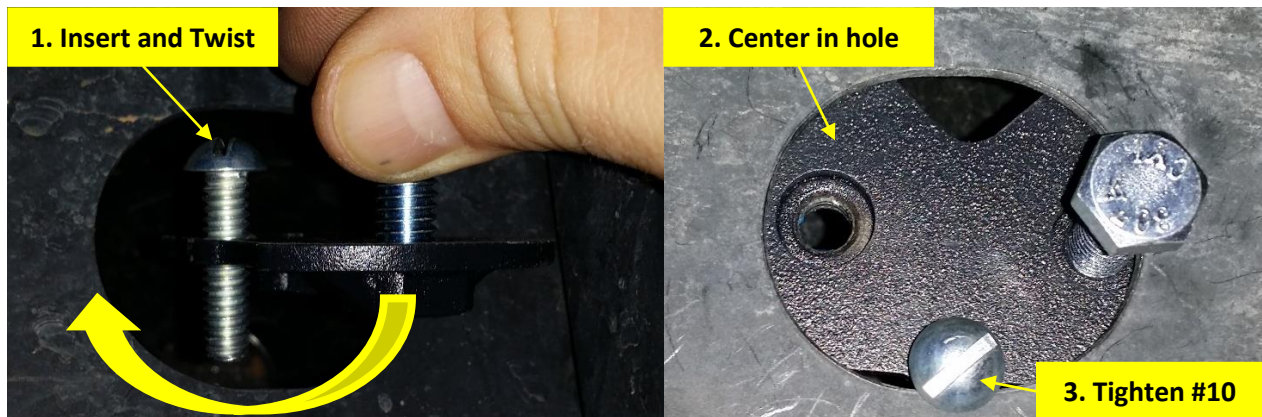


Figure 12 - RAPTOR-203 Insertion Method and Tightened to Frame.

10.1.5. Once Nut Plate is inside hole and rotated as shown above, firmly tighten #10 screw to frame. Screw will be on bottom edge of frame. Ensure Nut Plate is centered within frame hole vertically and horizontally.

10.1.6. Repeat above steps for second RAPTOR-203 .

10.2. Knurled Carriage Bolt Installation (Standard “Knurled Bolt Stack-Up”)

10.2.1. With specified washer installed on Knurled Carriage Bolt, slide bolt through frame, and hold in position.

10.2.2. Use small magnetic tool to secure end of bolt and bring through specified holes shown in Figure 13.

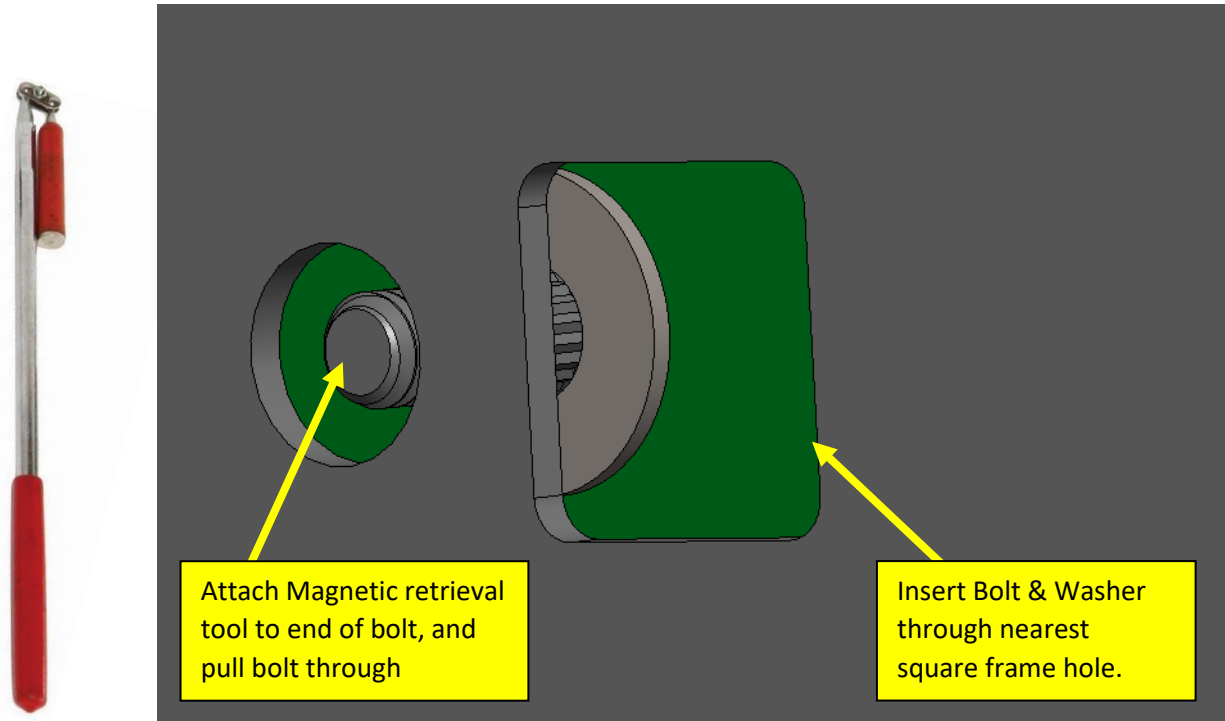


Figure 13 - Knurled Bolt Installation (Common throughout)

10.2.3. All Knurled Carriage Bolts will be attached to frame and Brackets in order shown in Figure 14 below.

NOTE: Knurled Carriage Bolts will press fit into Bracket holes during final tightening; if necessary to loosen bolts for re-positioning, first loosen nut until flush with end of bolt and hit end of bolt with hammer to punch bolt slightly out of hole.

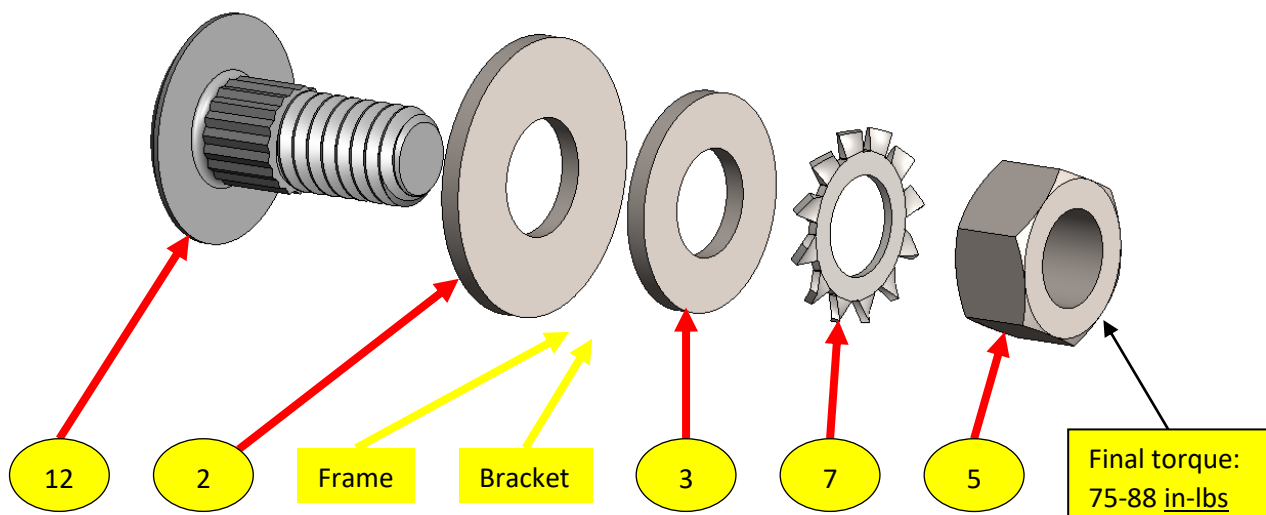


Figure 14 - Knurled Carriage Bolt “Stack-up” (Common throughout)

10.3. Tank Bracket (RAPTOR-201) Installation and Temporary Tightening

10.3.1. Install RAPTOR-201 onto frame using hardware #2, #3, #5, #7, and #12 in left side holes, as shown Figure 15 below. *Hand tighten only*, to allow later adjustment.

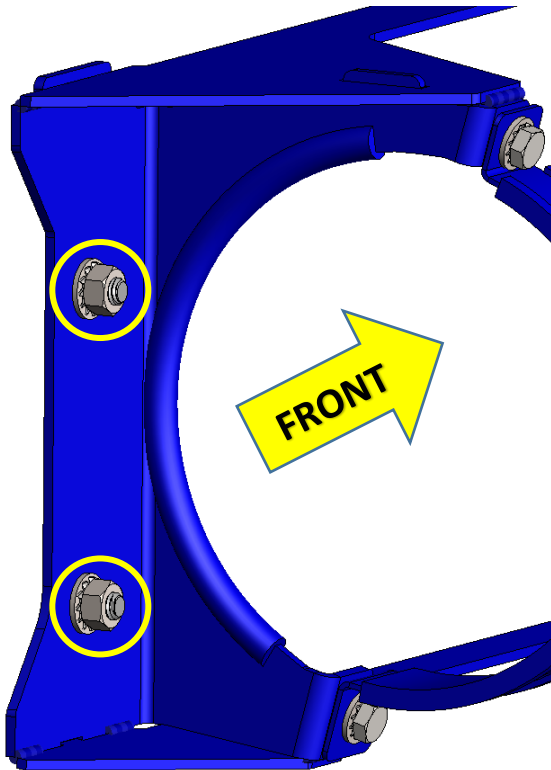


Figure 15 - RAPTOR-201 Hardware Location (left side)

10.3.2. Install hardware (1) #3, #7, & #11 into left hole on right side of RAPTOR-201. Ensure right hole is lined up and tighten firmly, as shown in Figure 16 below.

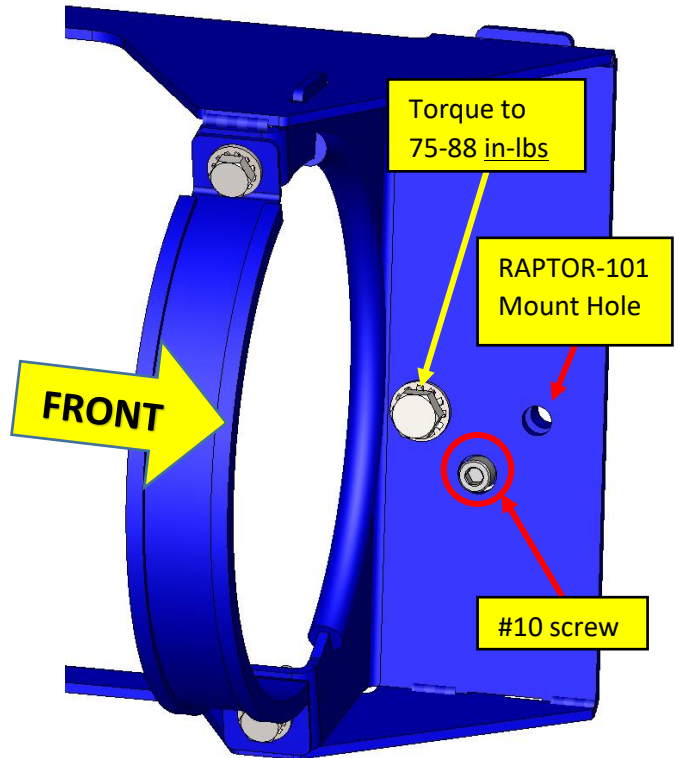


Figure 16 - RAPTOR-201 Hardware Location (right side)

10.3.3. Verify RAPTOR-101 hole is lined up, then remove #10 screw as shown circled in Figure 16 above. If necessary, thread another bolt into RAPTOR-101 hole to ensure correct alignment.



Figure 17 - RAPTOR-201 Bolted to Frame (Compressor Bracket also shown attached)

10.4. Compressor Bracket (RAPTOR-101) Installation and Final Tightening

10.4.1. Mount RAPTOR-101 on top of RAPTOR-201, using [hardware](#) #3, #7, #11 throughout.

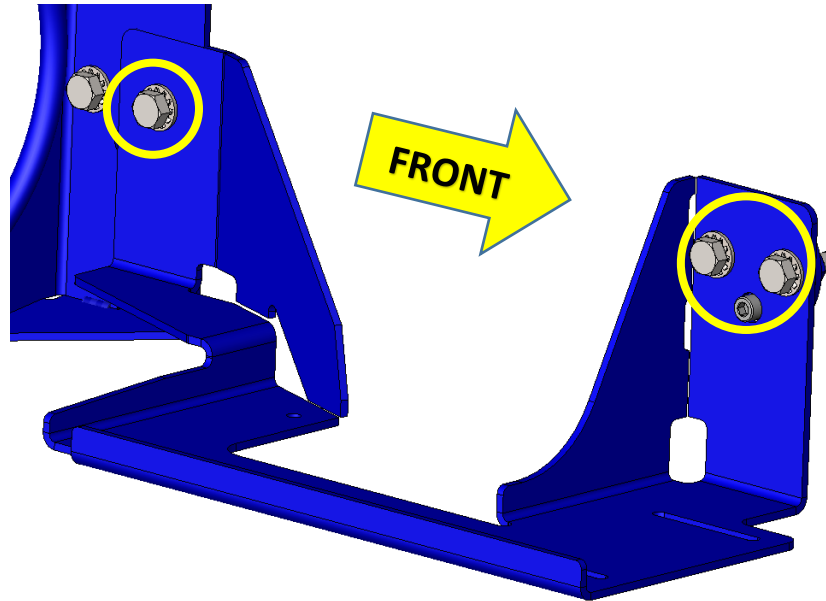


Figure 18 - RAPTOR-101 Mounted on top of RAPTOR-201

10.4.2. Remove #10 screw from right side of Compressor Bracket.

10.4.3. Position both Tank Bracket and Compressor Bracket toward bottom of bolt holes (i.e., provides maximum Air Tank and Compressor clearance to vehicle body); ensure Brackets are level/parallel to vehicle frame.

10.4.4. Final torque all Tank Bracket and Compressor Bracket mounting hardware, as shown in figures above.

10.5. Attach Compressor to Bracket

10.5.1. Using [hardware](#) #19, #20, #21, & #22 mount Compressor to RAPTOR-101 as shown in Figure 19 & 20 below.

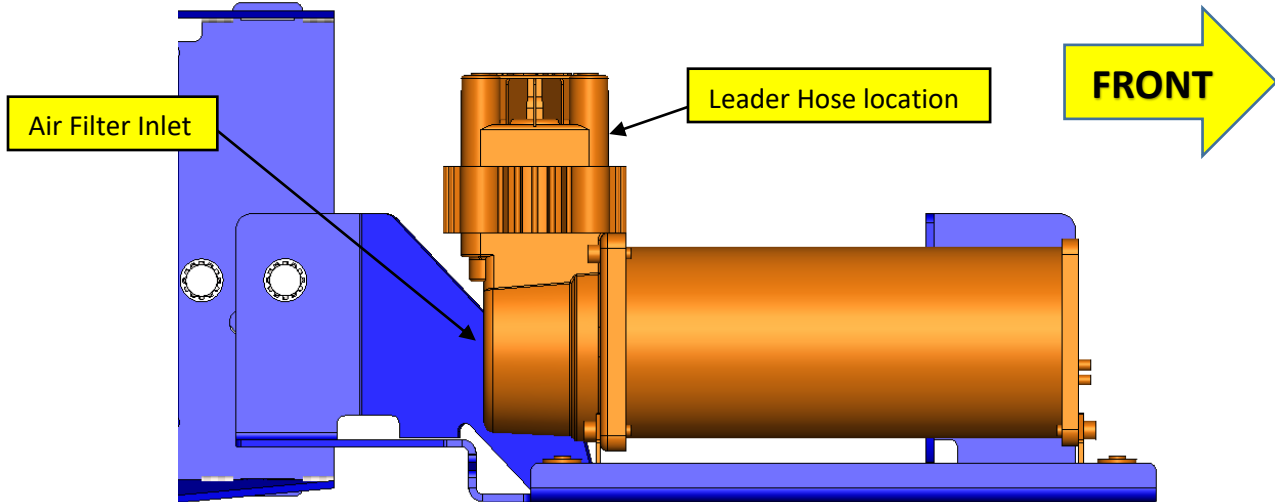


Figure 19 - Compressor Mounted on RAPTOR-101

10.5.2. Ensure Compressor is oriented properly, with output “leader” hose facing forward, as shown above.

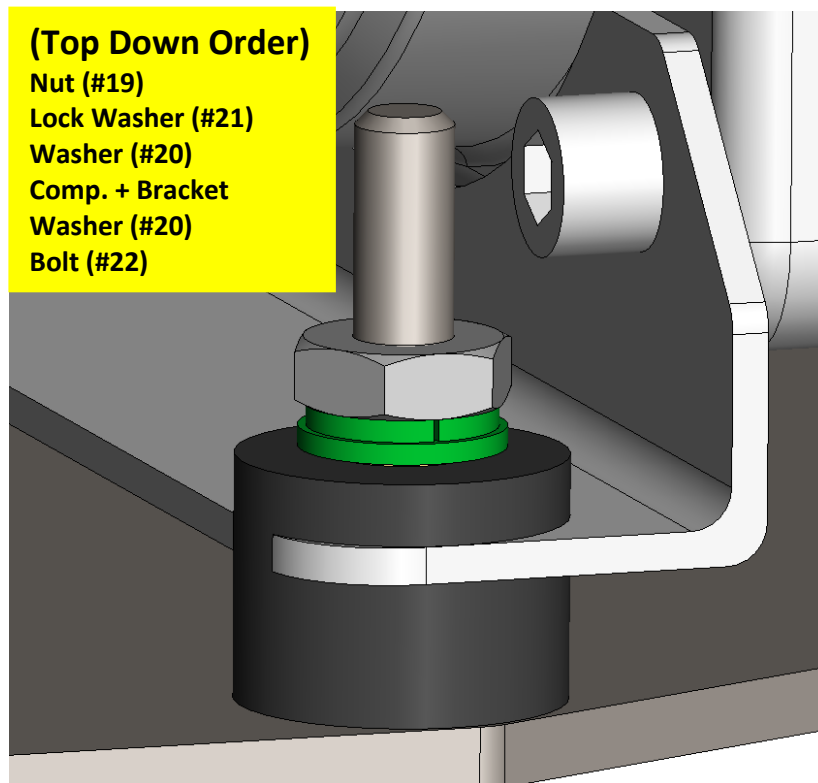


Figure 20 – Standard Air Compressor fasteners “Stack-Up”

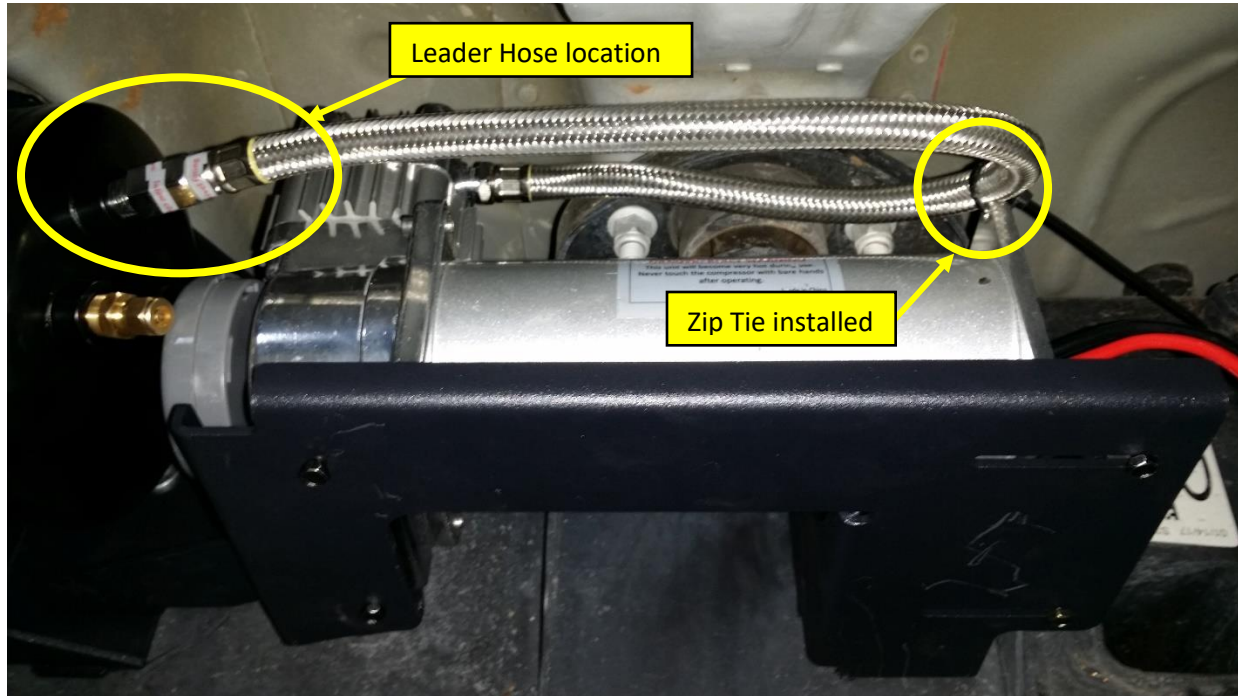


Figure 21 - Compressor installed. Leader Hose Zip-tied to Compressor end plate hole

10.5.3. Torque Compressor Hardware to 18 in-lbs.

10.5.4. Install Air Compressor filter to Compressor, or if preferred to mount filter remotely, attach threaded barb to front of Compressor, as shown in Figure 22 below.

NOTE: See remote air filter installation instructions included within Air Compressor package. Some examples of remote locations include under body, in bed, under hood, etc. **If preferred to install Air Compressor Filter Relocation kit, do so before Air tank is installed.**

10.5.5. Attach wiring to Compressor and Air Tank Pressure switch, as per wiring diagram shown in [Figure 2](#).

10.5.6. Install wiring loom provided to protect wiring and securely attach all wires to vehicle using zip ties.

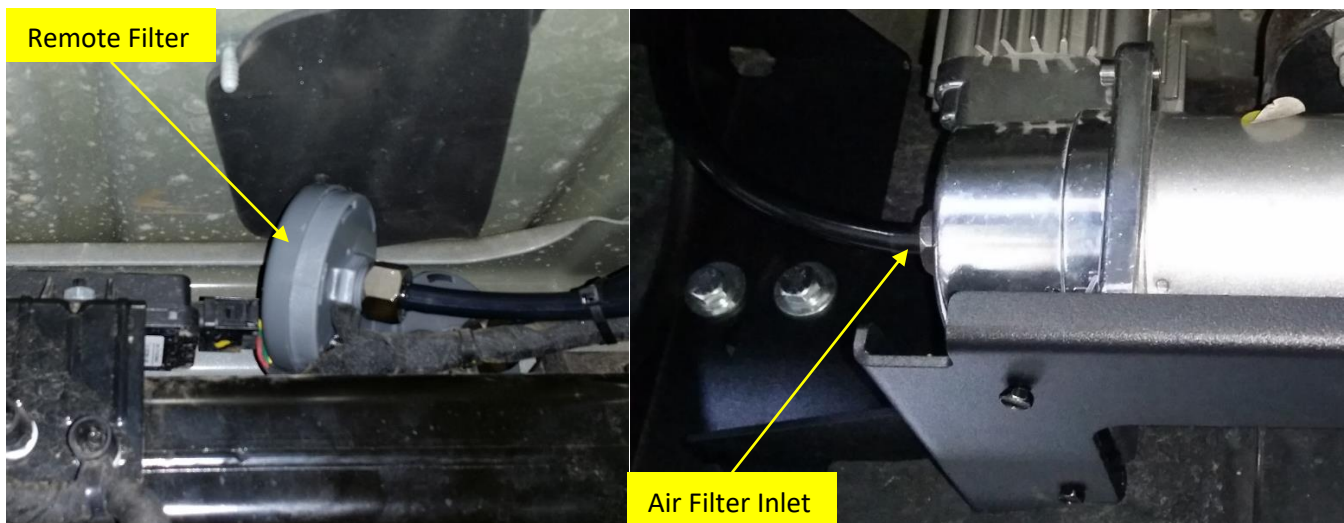


Figure 22 - Air Compressor Filter Remote Tubing shown attached

10.6. Air Tank Installation

10.6.1. Attach Rubber strip #15 (Thin "U") to Tank Bracket, shown with red arrows in Figure 23 below.

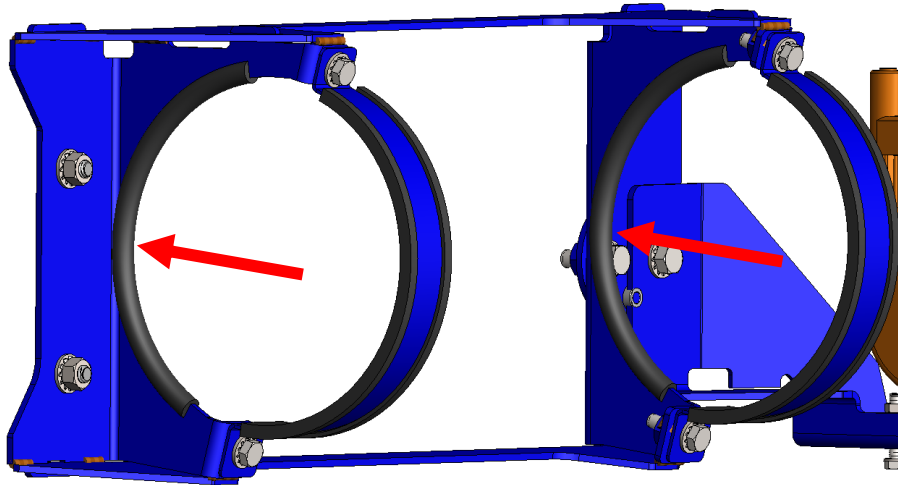


Figure 23 - Rubber Strips Attached to Tank Bracket and Tank Straps

10.6.2. Orient Air Tank and secure both RAPTOR-202 to bottom holes using [hardware](#) #4, #8, & #9, as shown in Figure 24 below. Final torque to 37 in-lbs.

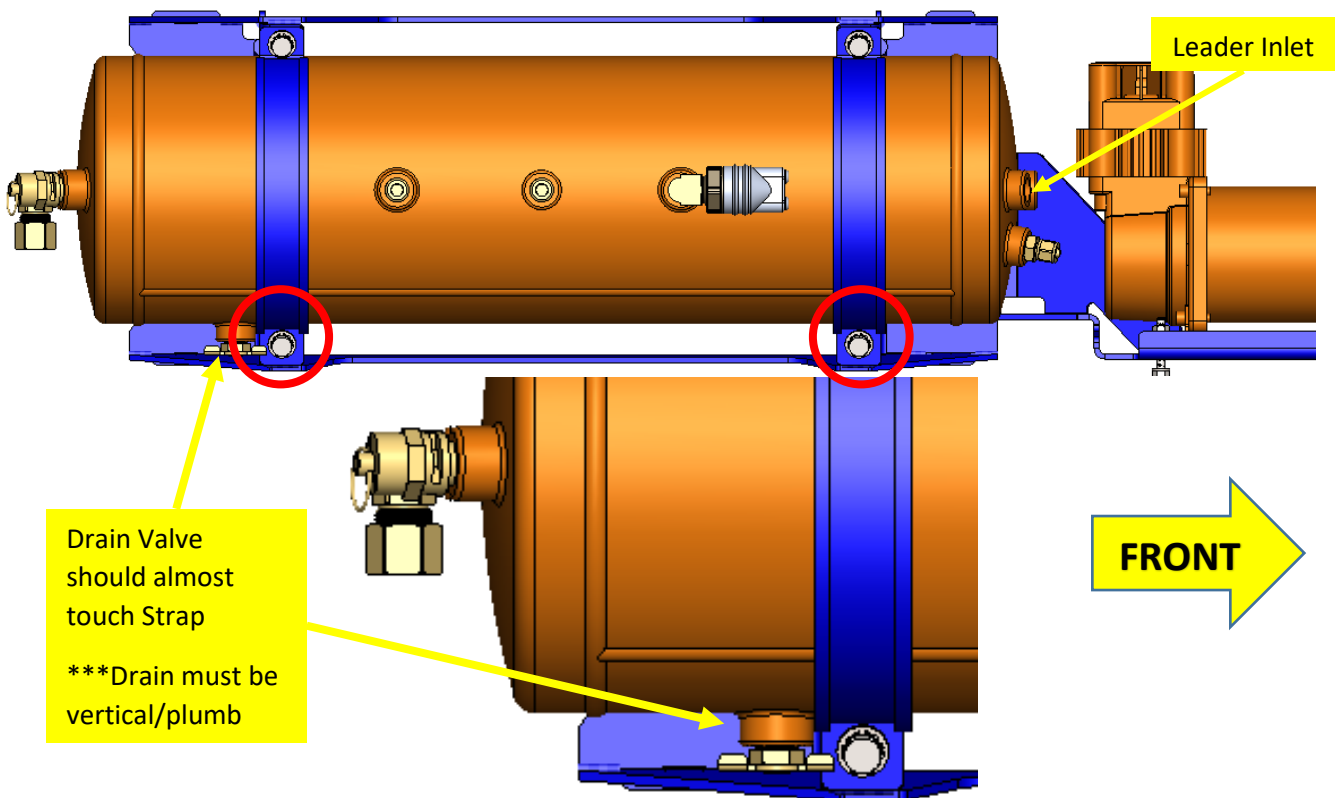


Figure 24 - Air Tank Final Installed

10.6.3. Connect Compressor leader hose to open port in Air Tank and tighten. Apply two small drops of [Kleinn Air Horn Juice](#) to each male pipe thread.

10.7. Drain Valve Skid Plate (RAPTOR-206) Installation

NOTE: If desired, Skid Plate may be left off. Purpose of part is to minimize potential Air Tank Drain Valve damage from aggregates and projectiles coming from front and rear tires while off-road. If elected to install, it may be necessary to remove each time Air Tank is drained.

10.7.1. Locate two holes on RAPTOR-201, near Air Tank drain fitting, as shown in Figure 25 below.

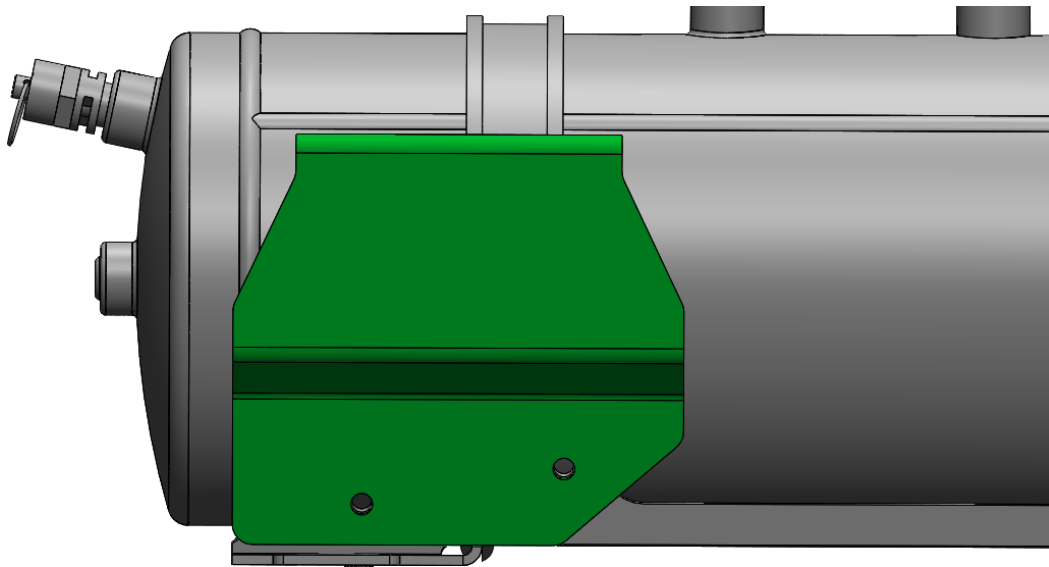


Figure 25 - RAPTOR-206 Lined Up with RAPTOR-201

10.7.2. Using #4, #8, #23, install RAPTOR-206 and fully tighten hardware, as shown in Figure 26 below.

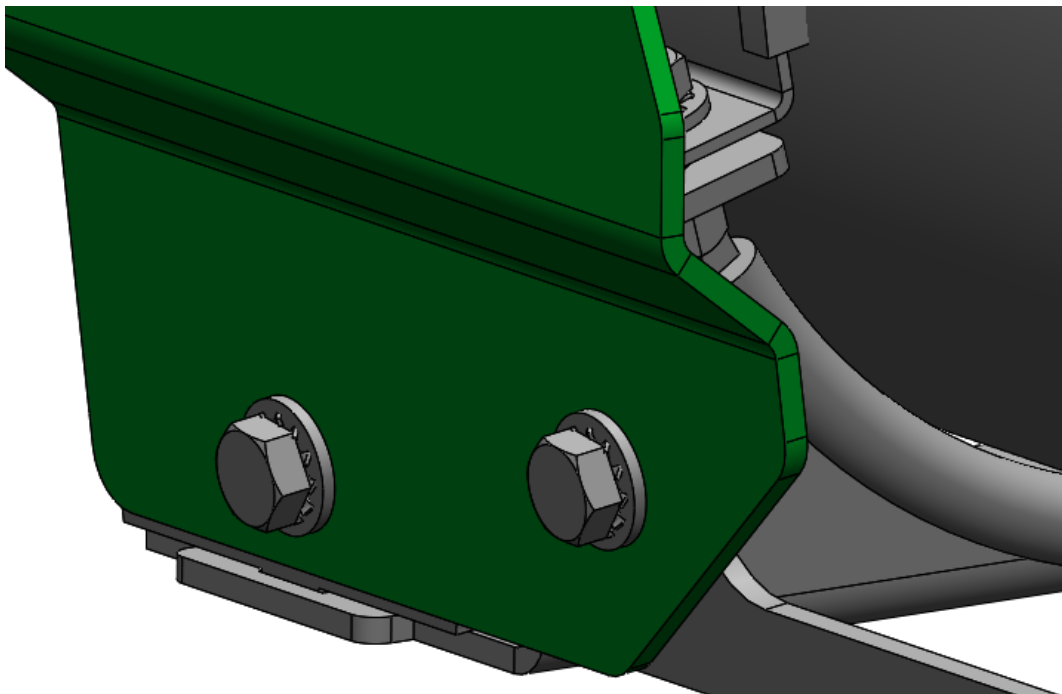


Figure 26 - RAPTOR-206 Installed on Tank Bracket



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10.8. Connect Remote Quick Connect Kit to Vehicle

- 10.8.1. Route and attach Quick Connect Coupler Kit to vehicle, as desired using attachment bracket and self-drilling fasteners, supplied in Coupler package
- 10.8.2. Use supplied 1/4" tubing and attach to port shown in [Air Tank Fittings figures above](#).

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



Figure 27 – Example of Air Coupler Mounted To Bumper

10.9. Main Horn Bracket (RAPTOR-301) Installation

*NOTE: For ease of installation, loosely install all hardware for horn drivers and ore mount hardware **before** installing all brackets.*



Figure 28 - Driver's Side Frame Rail under rear door

10.9.1. Locate section of frame for Horn bracket installation. Remove two bolts shown circled in Figure 28 above; do not discard hardware. Pull brake lines away from frame to facilitate bracket installation.

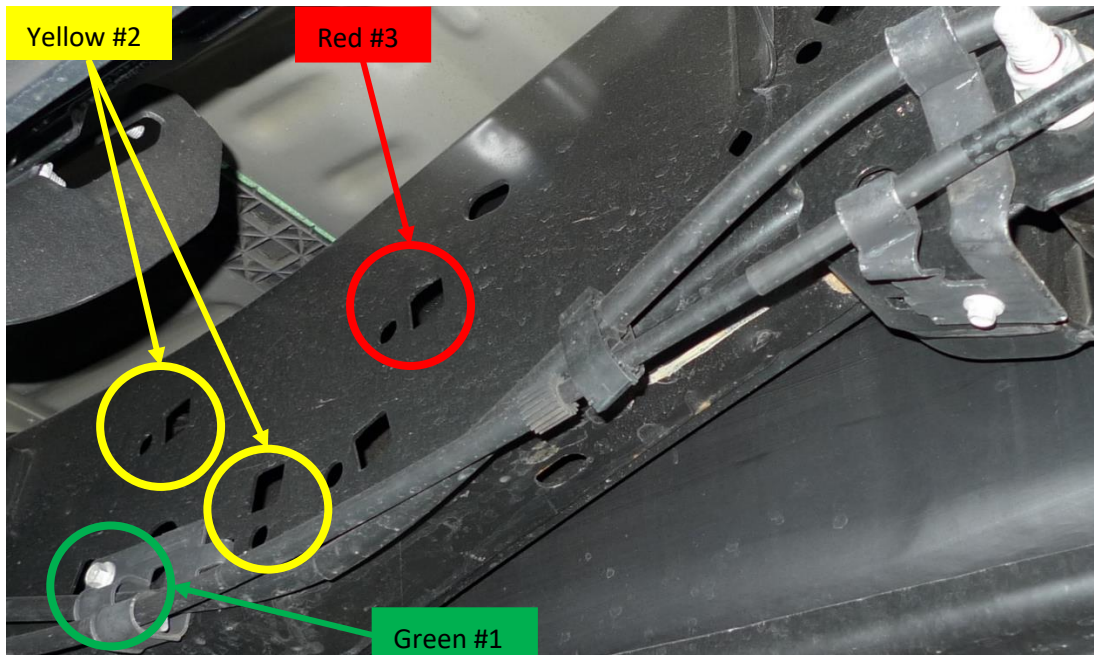


Figure 29 – Main Horn Brackets Mounting Holes in Frame

- 10.9.2. Locate all mounting holes shown circled in Figure 29 above.
- 10.9.3. Remove factory frame clip behind Parking Cable Bracket, as shown circled (Green #1) in Figure 29 above.
- 10.9.4. Lift RAPTOR-301 into place, as shown in Figure 30 below.

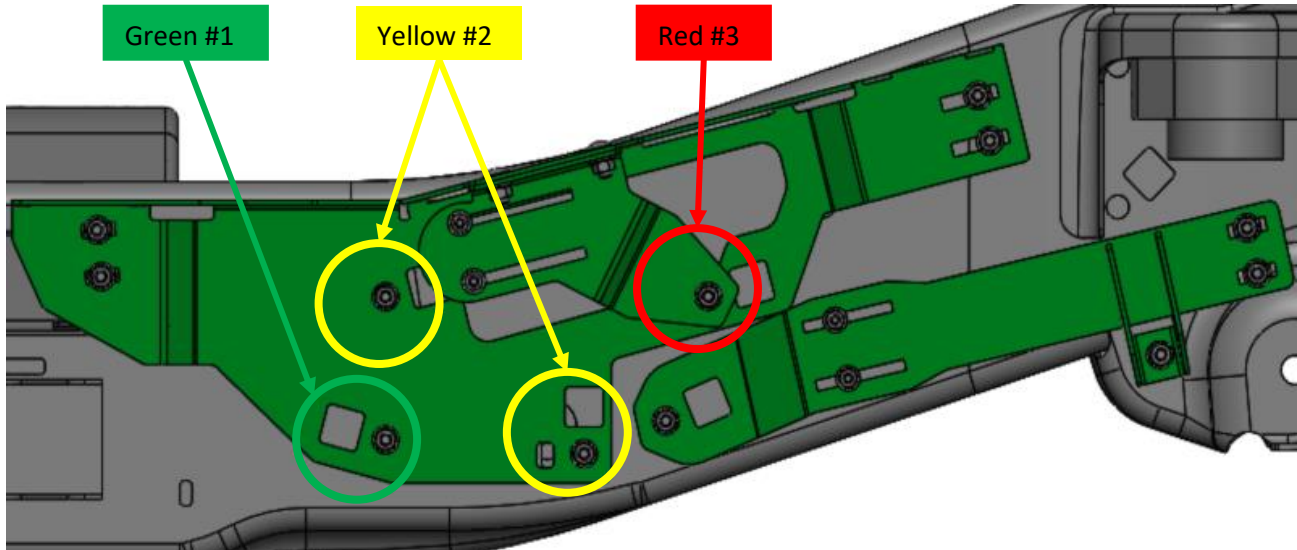


Figure 30 - View of Frame with Frame Clip location circled; RAPTOR-301, 302, 303 shown installed

- 10.9.5. Slide factory frame clip over original location, clamping RAPTOR-301 to frame, as shown below.



Figure 31 - Factory Frame Clip Reinserted into RAPTOR-301

- 10.9.6. Reinstall factory Parking Brake Cable Bracket using factory bolt.
- 10.9.7. Secure RAPTOR-301 to frame using [hardware](#) #2, #3, #5, #7, and #12. [Knurled bolt "Stack-up" applies.](#)

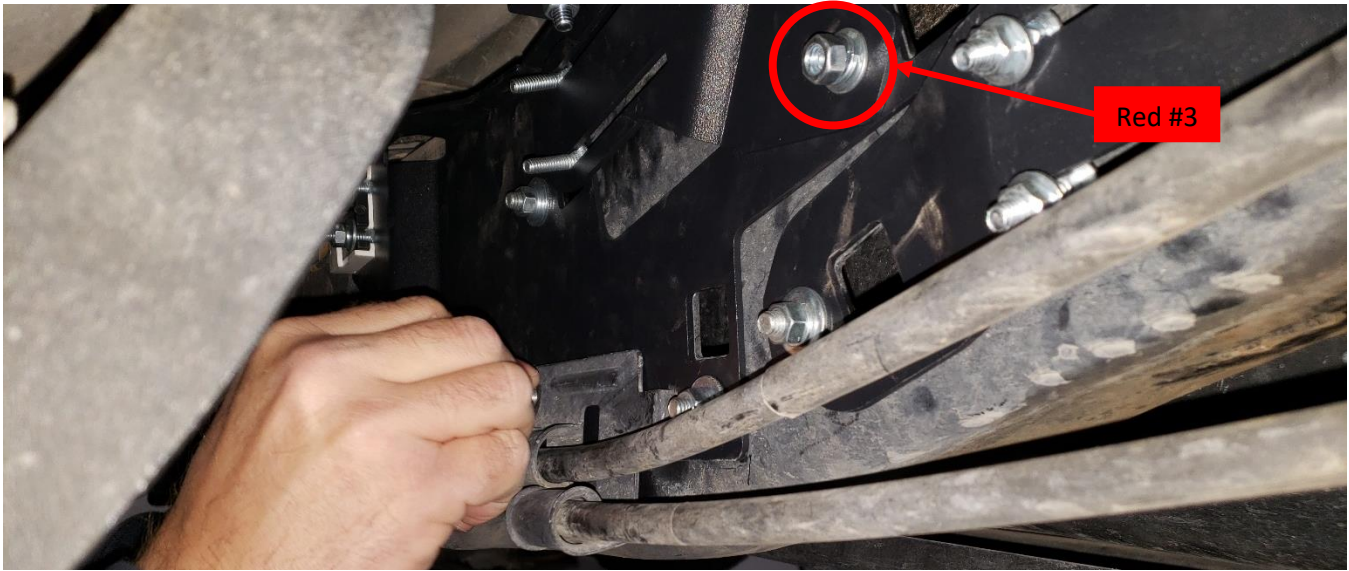


Figure 32 - Reinstalling brake bracket over RAPTOR-301

10.9.8. Secure RAPTOR-303 over RAPTOR-301 to vehicle frame using [hardware](#) #2, #3, #5, #7, & #17, as shown circled (Red #3) in Figure 32 above.

10.9.9. Final tighten all fasteners in this section.

10.10. Medium Horn Bracket Installation.

10.10.1. Locate 2 holes in frame shown in Figure 29 below.

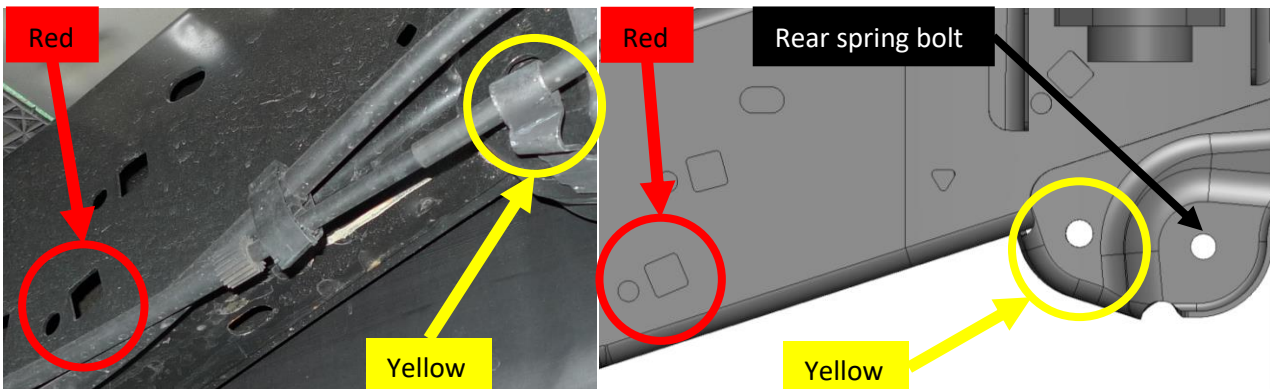


Figure 33 - Medium Horn Bracket Mounting Points

10.10.2. Attach RAPTOR-302 to vehicle frame using [hardware](#) #2, #3, #5, #7, & #12 for mounting point shown circled red in Figure 33 above.

10.10.3. Use [hardware](#) #1, #3, #5, #7, & #12 for mounting point circled yellow. [Knurled bolt "Stack-up" applies.](#)

NOTE: use washer #1 BEHIND frame (i.e., normal location for #2, per "Stack-Up")

10.10.4. Final tighten all fasteners in this section.

10.10.5. See Figure 30 above for Brackets installed in proper location and orientation.

10.11. Air Horn Driver Installation

10.11.1. Mount all Air Horn Drivers following layout shown in Figure 34 below. Mount Air Horn Drivers using [hardware](#) #3, #5, #7, & #13. **Standard Knurled bolt "Stack-up" DOES NOT apply.** Hand tighten only.

NOTE: ensure arrow on primary brass Solenoid is pointing toward Air Horn Driver

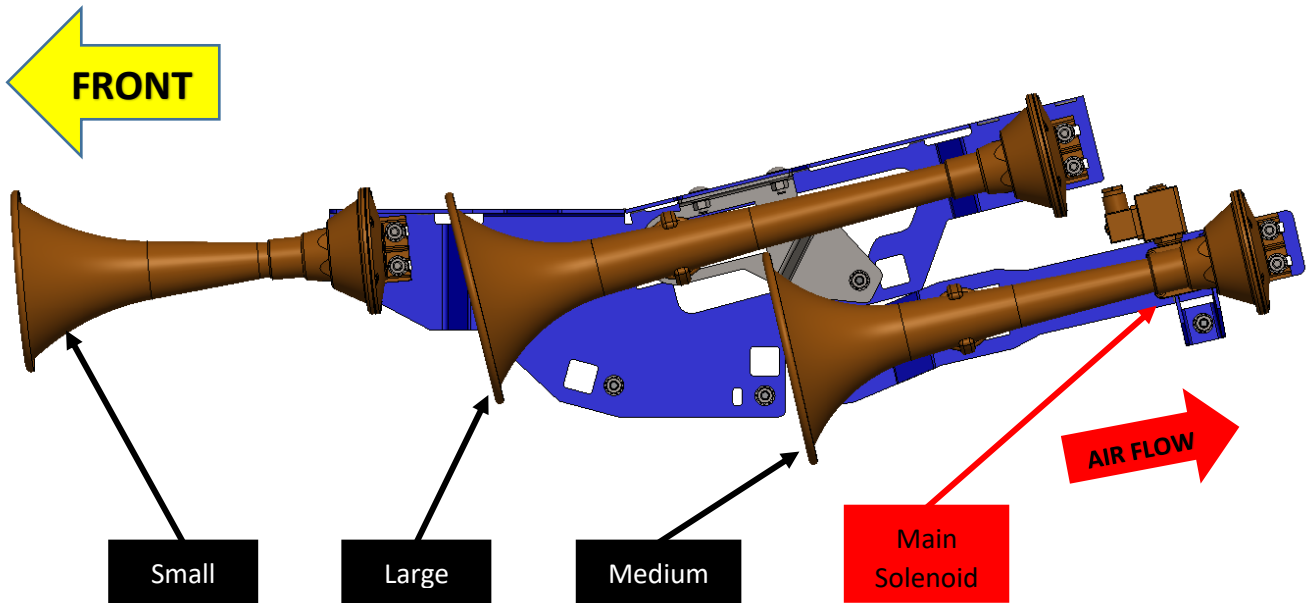


Figure 34 – Air Horn Layout (730 Horns shown with Trumpets attached); same for 734/230 Kits

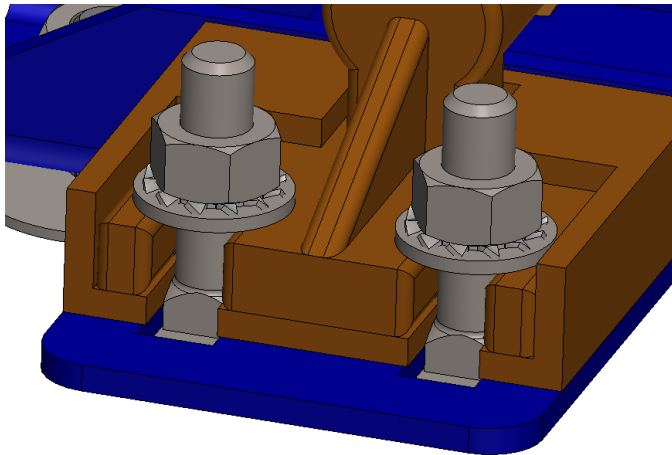


Figure 35 - Air Horn Driver with Hardware Installed
(Common Throughout)



Figure 36 – Air Horn Drivers Installed
(solenoids may differ from ones shown)

10.12. Connect Air Tubing to Air Horn Driver

10.12.1. Route supplied semi-rigid plastic Air Tubing, as necessary to avoid sharp edges and high heat areas.

10.12.2. Connect Air Horn Drivers together with supplied 1/4" Air Tubing.

10.12.3. Connect Medium Driver Solenoid to proper Air Tank fitting, as shown in [Fitting location figure above](#).

NOTE: It's recommended to route air line through crossmember in front of Compressor, as shown below.



Figure 37 - Air Line Routing Through Frame Crossmember

10.12.4. Connect supplied wiring to Medium Horn solenoid, as per wiring diagram in [Figure 2](#). Use supplied wiring loom to cover all bare wires, and secure wiring to body.

10.13. Re-attach Trumpets to Air Horn Drivers

10.13.1. Re-attach Horn Trumpets to their respective Air Horn Drivers, as shown in [Figure 34 above](#); if using Ore-Locks, it's necessary to first slide Trumpet throats through Ore-Locks and into Air Horn Drivers. Tighten snugly using both hands to twist along bell end.

10.13.2. Position each Air Horn, as necessary to maintain at minimum 1/4" between Trumpets and vehicle body. Firmly tighten Air Horn mounting bolts to 75-88 in-lbs.

10.13.3. Using supplied plastic zip ties secure Air Tubing to Trumpets, as necessary to prevent abrasion.

NOTE: If parking brake cable contacts Trumpet(s), secure parking brake to Trumpet(s) using zip tie(s).

End of Section



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11. Initial Testing of Kit

11.1. 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.

11.2. Test Air Compressor

- 11.2.1. 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.
- 11.2.2. 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.
- 11.2.3. 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
- 11.2.4. System must be pressurized or at least Air Compressor running
- 11.2.5. If an air leak is found:
- 11.2.6. Safely release air pressure from system (i.e., slowly open drain valve)
- 11.2.7. Disassemble leaky connection, re-seal and reinstall fittings as needed

11.3. Test Train Horns

- 11.3.1. Allow Air Compressor to run and shut-off automatically (i.e., Air Tank is full)
- 11.3.2. 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
- 11.3.3. 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.

- 11.3.4. 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)
- 11.3.5. Horns should sound as expected and be loud; [click to listen to example 230 Kit](#)
- 11.3.6. Horn sound/loudness will taper quickly as Air Tank loses pressure
- 11.3.7. Allow Air Compressor to refill tank, if needed and activate Horns for longer three (3) second period to ensure Horns are functioning properly.

11.4. Test Quick Connect Coupler

- 11.4.1. Allow Air Compressor to refill tank, if needed
- 11.4.2. Attach supplied INF-1 inflator kit to Quick Connect Coupler and verify adequate air pressure is available
- 11.4.3. Test fill tires on vehicle, bicycle, etc.
- 11.4.4. Use Air Blow Gun
- 11.4.5. Use Air Impact Gun

End of Section



RAPTOR-734/230

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12. General Operation of Kit

12.1. Compressor Operation

WARNING: *Never operate Air Compressor above its MAXIMUM PRESSURE RATING (see label on body). Operation exceeding maximum pressure will damage Air Compressor and may result in Dangerous Air System failure.*

- 12.1.1. Air compressor is equipped with an automatic thermal overload protection circuit, designed to protect air compressor from overheating and causing permanent damage.
- 12.1.2. Automatic thermal overload protector will automatically reset after 30 minutes.
- 12.1.3. 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.).

12.2. Horn Operation

- 12.2.1. 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.
- 12.2.2. Press Horn Button to activate Horns
- 12.2.3. Horn sound/loudness will taper quickly as Air Tank loses pressure.
- 12.2.4. Horns should sound for 3-7 seconds depending on kit and tank size

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.*

13. Routine Maintenance

Perform following steps at least once during recommended intervals.

- 13.1. 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.
- 13.2. 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 where road salts are used.

- 13.3. 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.

- 13.4. 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 lines, which can suddenly release air pressure causing injury to nearby people.*

- 13.5. Yearly, or every 12000 miles clean, or replace air compressor air filter element. Replacement frequency depends on operating frequency and conditions of operating environment (i.e., daily use of air compressor in dusty, or wet environment requires more frequent filter change).

NOTE: Never lubricate or add any liquids to the included oil-less air compressor