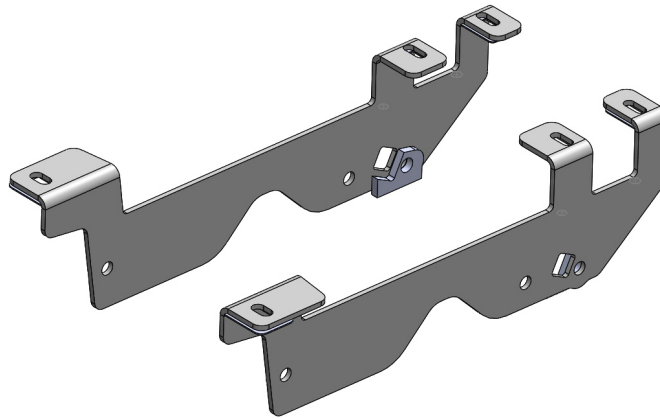




# FORD F-150

## 20K Industry Standard Rail Custom Mounting Kit

### #2772



Gross Trailer Weight (Maximum).....20,000 lbs.  
Vertical Load Weight (Max. Pin Weight) .....5,000 lbs.

### **SYSTEM TOW CAPACITY**

Please note, in order to determine the **total tow capacity** of a system, you must consider the weight ratings of each component in that system. This includes, but may not be limited to, the capacity/rating of the **tow vehicle**, the **fifth wheel hitch**, and the hitch's **mounting system**. Actual tow capacity of the system will be equal to the lowest rated component.

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# Installation Instructions

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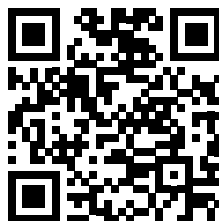
### **SPECIFICATIONS**

- Fits 2021 Ford F-150.
- King pin is located 1-1/4 inches ahead of the axle.
- Custom Mounting Bracket Kit (Bracket and hardware) pt #2773.

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<https://www.youtube.com/user/PullRiteVideo>

## PREPARATION

1. Remove the hitch from the shipping carton and check the part quantities using the Parts List on page 5.
2. Block vehicle wheels. Some vehicles may require you to raise the rear of the truck in order to make it easier to drill for installing the mounting brackets on the truck frame.
3. You may wish to remove the wheels to give yourself greater working room.
4. Read all instructions.

## ISR RAILS

This PullRite mounting kit is designed to be used with ISR, or Industry Standard Rails, a universal hitch mounting rail system used in the RV industry. Once installed, the ISR can be a cost-effective way to replace or upgrade your hitch without having to install new rails and bracket kits.

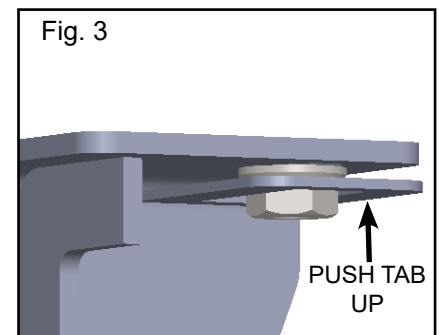
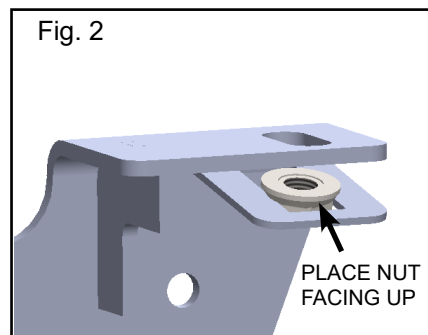
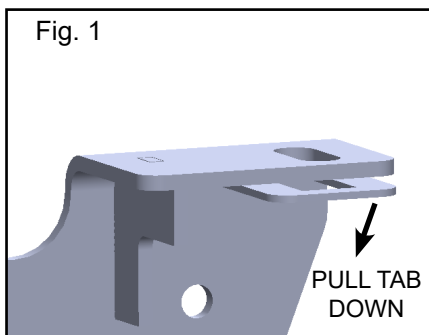
**Note:** Your tow package is only as strong as its weakest link, therefore If you have a 24K hitch in your truck on a 20K rail system, you can only safely tow a 20K trailer.

## BRACKET NUT TAB

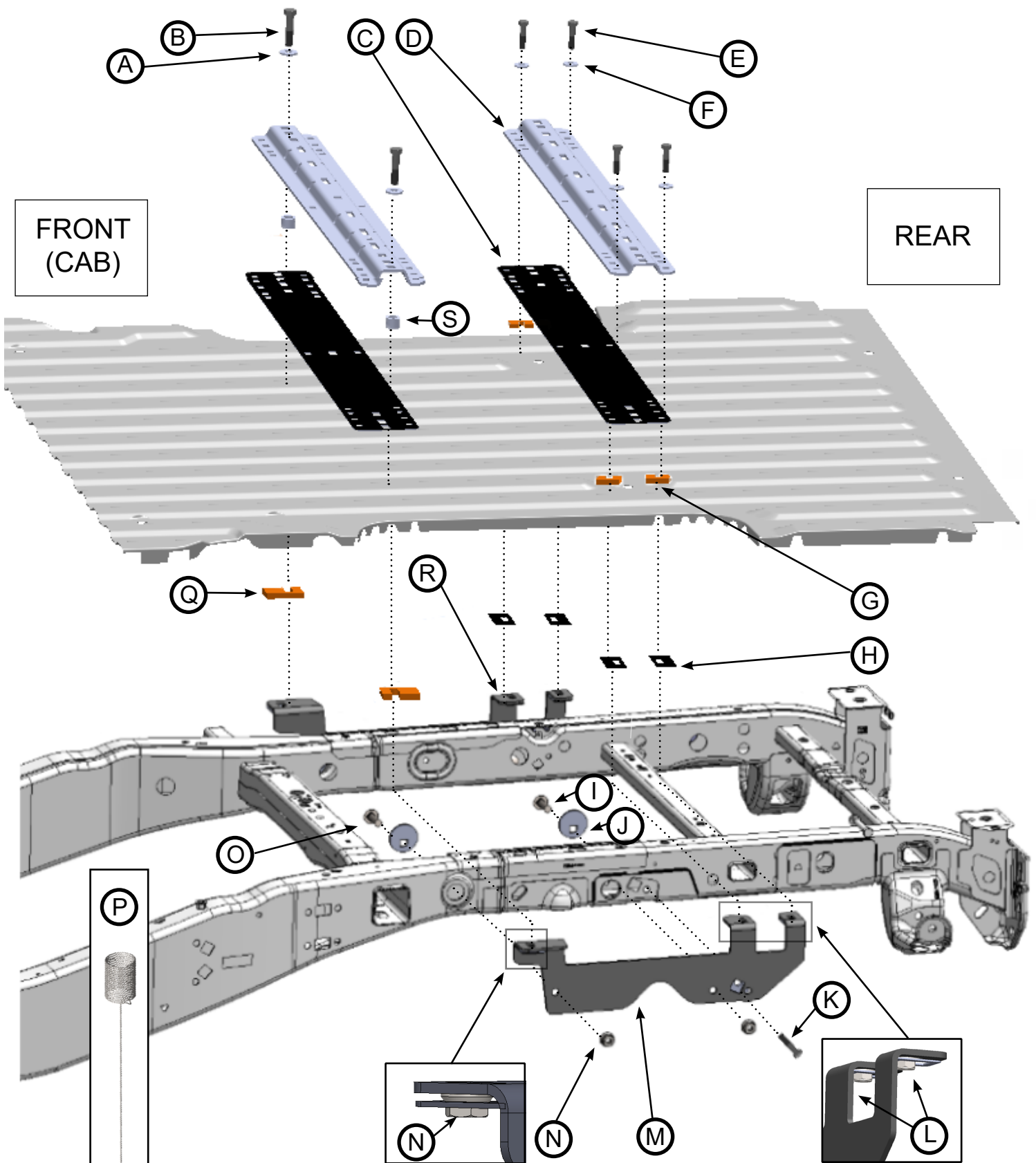
The Bracket Nut Tabs are a feature built into PullRite mounting brackets. They hold the 5/8" & 1/2" flange nuts locked in place, making it easier to install the rail kit. It eliminates the need for a wrench on the nut when tightening down the rail bolts. The bracket and tab both feature an oblong slot which allows for some tolerance left to right when installing the rails.

Instructions for the (6) tabs are as follows:

1. Bend open the tabs by pulling down with hand or pliers (Fig.1).
2. Place the 5/8" & 1/2" flange nuts face up to oblong slot in bracket. Make sure nut is firmly seated in the tab (Fig. 2).
3. Bend tab back into place with nut inside (Fig. 3).



# MOUNTING KIT EXPLODED VIEW



# PARTS LIST

## #2772 ISR CUSTOM MOUNTING KIT

Item	Description	Part No.	Qty.	Material
A	* 5/8" CONICAL SERRATED WASHER	98200171	2	.6460 X 1.49 X .164 EXT TOOTH CON WSHR
B	5/8" BASE RAIL BOLT	98010217	2	5/8"-11 X 3" HEX CAP SCREW GR 5
C	LARGE BASE RAIL SPACER	27610003	2	BASE RAIL LENGTH PLASTIC
D	IS UNIVERSAL BASE RAIL	27190001	2	
E	1/2 BASE RAIL BOLT	98010178	4	1/2"-13 X 2 1/4" HEX CAP SCREW
F	* 1/2" CONICAL SERRATED WASHER	98200172	4	CON.SERRATED WASHER .531 ID X 1.25
G	CENTER SLOTTED SHIM	27610005	4	LEXAN MATERIAL
H	**INSULATOR	27670118	4	ABS PLASTIC MATERIAL
I	5/8" X 1 1/2" CARRIAGE BOLT	98050129	1	5/8"-11 X 1-1/2" CARRIAGE BOLT GR 5
J	CIRCULAR BOLT WASHER	27610001	2	.531 ID X 1.25 OD X .144 THK GR 5
K	M10X45 HEX CAP SCREW	98010401	1	M10X45 6921-10.9 HEX CAP SCREW ZINC
L	1/2" SERRATED FLANGE NUT	98150201	4	1/2"-13 SERR. FLANGE NUT ZINC
M	DS MOUNTING BRACKET	277301	1	
N	5/8" SERRATED FLANGE NUT	98150200	6	5/8"-11 SERR. FLANGE NUT ZINC
O	5/8" X 2" CARRIAGE BOLT	98050131	3	5/8"-11 X 2" CARRIAGE BOLT GR 5
P	5/8"-11 BOLT LEADER	98340198	2	STEEL WIRE BOLT LEADER
Q	OFFSET SLOTTED SHIM	27670117	2	LEXAN MATERIAL
R	PS MOUNTING BRACKET	277302	1	
S	IRS SPACER TUBE	27210204	2	1 -1/4" OD X .219 WALL STEEL TUBE

\* When installing conical washers, with or without teeth, be sure that the bottom (tooth or concave side) is being installed against the bracket or base rail, NOT the bolt head.



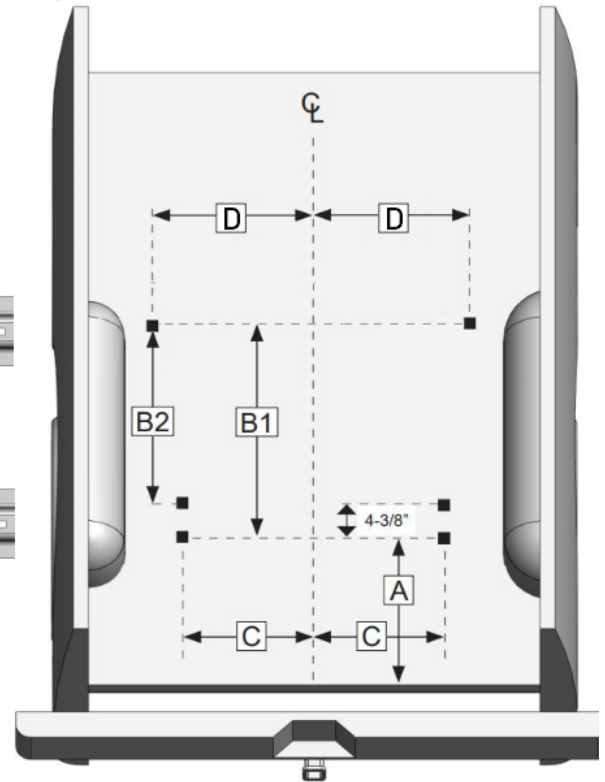
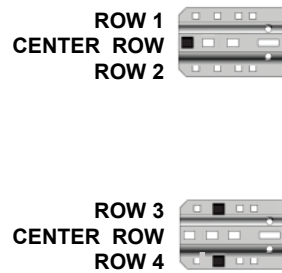
\*\* **NOTE** : These Insulators serve to protect aluminum truck beds from making contact with the steel brackets where galvanic corrosion could occur.

# MARKING THE BED FOR DRILLING

## LAYOUT METHOD

*If you purchased an installation template, please proceed "Template Method." Templates are sold separately.*

1. Referencing "Truck Bed Dimension Table" below, measure and mark from the back of the bed forward, the values for "A." Do this at any point on both sides of the bed and draw a line across the bed from mark to mark.
2. Find the centerline of the bed.
3. Draw a line down the middle of the bed from front-to-rear.
4. Starting at "A," measure from the end of the bed back to the first bolt hole on the base rail (row 4) and mark the bed.
5. Measure the distance of "C" from the centerline of the bed in both directions.
6. Continue working toward the cab, marking the center holes of each remaining bolt locations.



TRUCK BED DIMENSION TABLE						
LAYOUT METHOD					TEMPLATE METHOD	
"A"	"B1"	"B2"	"C"	"D"	"X"	TEMPLATE PART#
29-5/16"	26-5/16"	17-11/16"	18-9/16"	20-3/8"	28-5/8"	27200000

Before drilling bed holes - validate measurements with chassis mounted bracket (see steps 1- 4 on page 8).

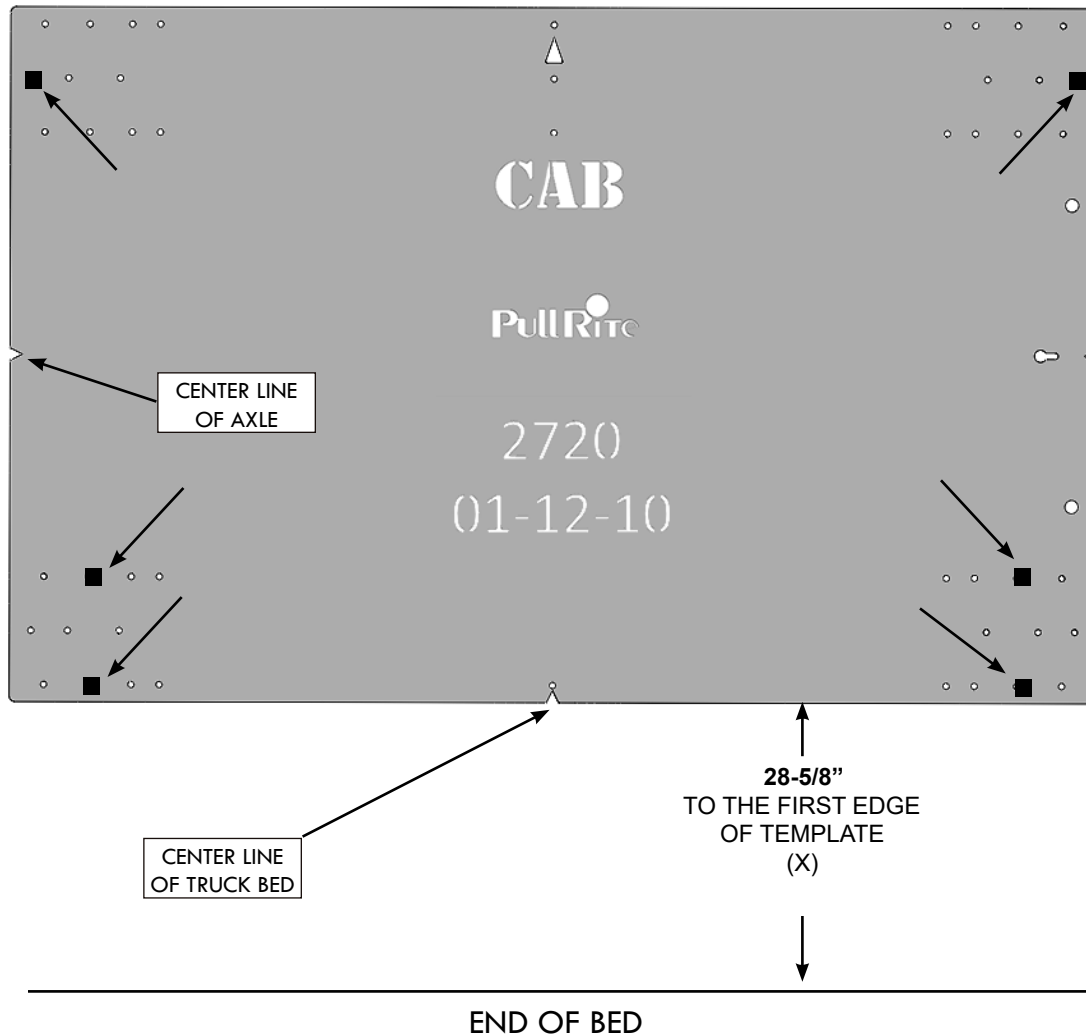
# TEMPLATE METHOD

1. Lay the Template (Part #27200000 - sold separately) in the truck bed, centering it from side-to-side, and parallel to the end of the truck bed using the dimension "X" listed below (Fig.5).
2. Mark the 4 holes as indicated below, making sure the template does not move (see Installation Tip).

**INSTALLATION TIPS:** The *TEMPLATE* should be orientated as shown in the drawing below. To avoid drilling holes in error from out of tolerance bed-to-frame dimensions, mark the hole locations as lightly as possible if a center or transfer punch is used. Then use a very small diameter drill bit to drill a location on one side of the bed. Place the Mounting Brackets against the frame to determine the correctness of the bed hole locations relative to the pre-punched holes in the Mounting Bracket and existing frame holes. Use transparent tape to cover the mounting hole on the top of each mounting bracket (when the pilot hole is drilled through the bed, the tape will be pierced by the small drill; which should be positioned in the center of the mounting bracket hole).

The template has a tendency to move when placed on the slick paint of new truck beds, and it may be helpful to place a small piece of NON-SKID matting, such as "SCOOT-GARD"™ or simply use duct tape on each corner to help keep the template from moving.

FIG. 5



**\*NOTE:** To insure accuracy of bed holes, follow all steps on pages 8-9 before drilling into the truck bed.

# INSTALLATION

## Mounting Bracket Installation

### Part 1: Bracket Placement & Bed Hole Locations

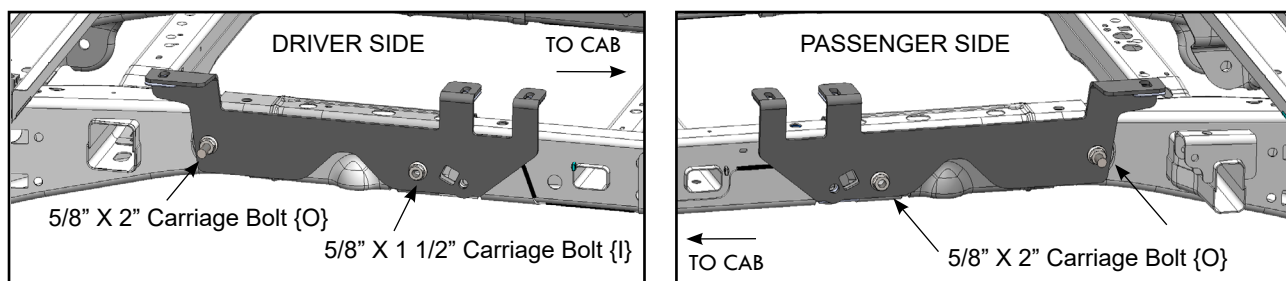
*Since most truck beds are not installed square to the frame or are the same distance from the back of the cab, the installer will need to make sure the bed holes line up properly with the center of each frame bracket mounting hole by following the instructions below.*

### Detailed Installation Instructions

1. Place the Driver Side Mounting Bracket {M} flush to the truck frame. Temporarily insert the 5/8" carriage bolts {O} & {I} through the bracket holes and into the frame holes to index proper placement of the bracket (bolts inserted this way are reversed from the final attachment of bracket). Use a clamp to fasten the bracket tightly in place. Repeat process with the Passenger Side Mounting Bracket {R}

**Note:** The passenger side bracket uses two 5/8" X 2" Carriage bolts {O}. See FIG. 6.

**FIG.6**



2. Use transparent tape to cover the mounting hole on the top of each mounting bracket (when the pilot hole is drilled through the bed, the tape will be pierced by the small drill; which should be positioned in the center of the mounting bracket hole).
3. Drill the first 1/16" pilot hole through the truck bed over the rear mark on the driver side where you made the mark during the "Marking Bed for Drilling." The bit should come down through the bracket hole, piercing the transparent tape, aiding the centering of the bracket front-to-rear and side-to-side.
4. If the pilot hole is off-center to the bracket hole, remember to adjust **all** the pilot hole locations accordingly.

**NOTE:** Some truck beds are not installed square on their frame by the manufacturer. To ensure your pilot holes are aligned properly, it is important that you use the measurements provided only as a starting point and make adjustments as needed.

Once you have one pilot hole centered, you will use this hole as a point of reference for all remaining pilot hole adjustments. If you are using the Template Method, simply use the properly drilled hole as a pivot point to square the remaining holes to the frame. If you are using the Layout Method, you may accomplish the same thing by using a framing square and straight edge.

5. Repeat steps for the passenger side mounting bracket, checking carefully for proper centering.

**WARNING:** Before proceeding to "Part 2, "Drilling the Bed...", you must verify that each pilot hole is centered left to right AND FRONT TO BACK over the hole on each mounting bracket before the larger bolt holes are drilled through the bed.



# INSTALLATION

## Part 2: Drilling the Bed & Bracket Installation

1. Remove the mounting brackets and use a 3/4" hole saw or step drill centered over the 1/16" pilot hole and drill through the truck bed. The 3/4" hole size will allow maneuverability to adjust the 1/2" & 5/8" bolts if needed.
2. De-bur the inside of the drilled bed holes.

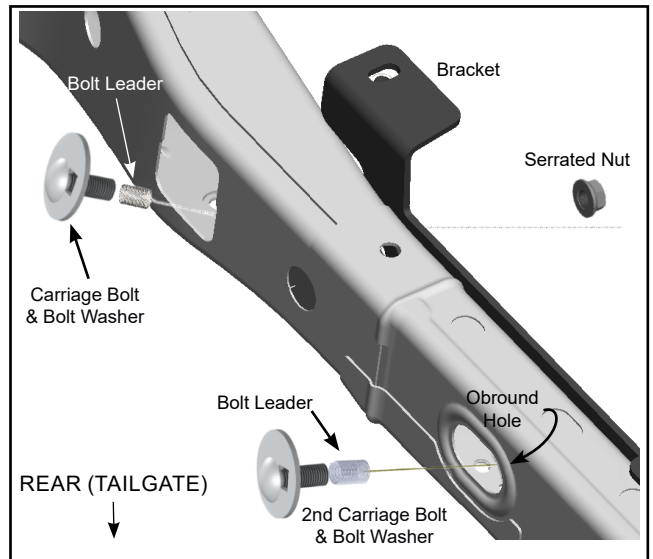
### Bracket Installation

1. Replace and fasten the mounting brackets to the frame with the 5/8" Carriage Bolts fully seated into the Circular Bolt Washers {J} inside the truck frame (See Fig.7).
2. To install, thread Carriage Bolt {O} with Circular Bolt Washer {J} into the coiled end of the Bolt Leader {P} and fish leader through the frame of the truck and pull through the large square hole inside of truck frame. Pull into the bracket hole until and bracket is flush to the frame the bolt threads are protruding. The second Carriage Bolt ({O} on passenger side, {I} on driver side) is placed into the frame and into the bracket similarly through the obround hole in frame.
3. Remove coiled end of leader from the bolt threads being careful not to push threads back into the frame. Hold tension on the bolt while tightening with 5/8 Flange Nuts {N}. Remember to tighten according to torque table on page 10.
4. Fasten both brackets with 5/8 Serrated Nuts {N}. Tighten all bracket fasteners using the torque table on page 10.

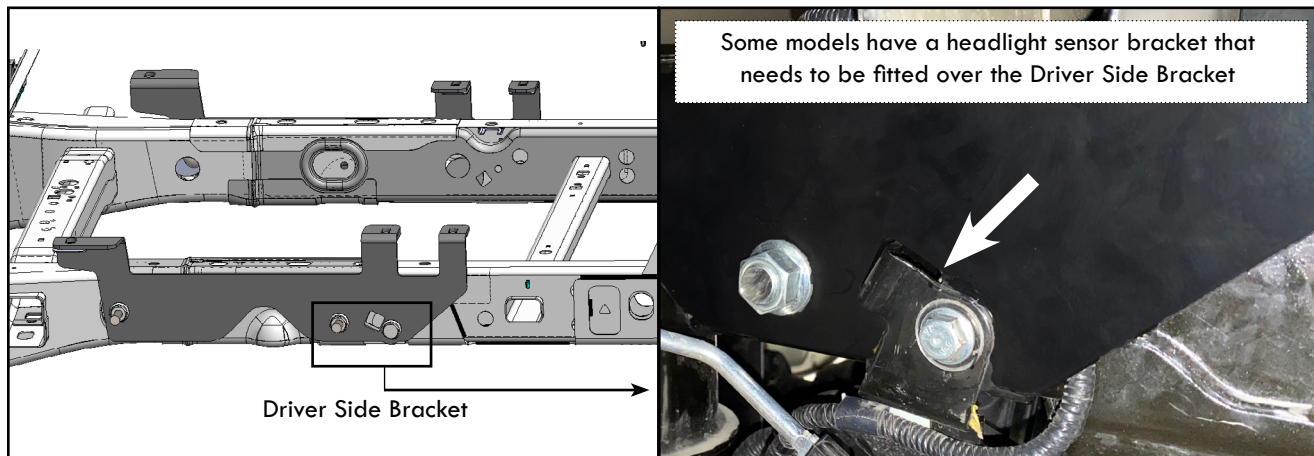
**NOTE:** Use a hand wrench to tighten flange nuts onto the bolts. DO NOT use an impact wrench, this can easily strip the connection.

**NOTE:** If the truck has a headlight sensor bracket on the driver side, then remove the factory bolt holding it in place and replace it with the M10 X 45 bolt {K} provided in this kit. The headlight sensor bracket will fit over the Driver Side Mounting Bracket {M} as shown below (FIG.8).

**FIG. 7** PASSENGER SIDE, INSIDE VIEW OF FRAME



**FIG.8**



# INSTALLATION

## Part 3: Hitch Alignment

1. Install ISR rails onto the truck bed. Use the supplied 5/8" x 3" bolts {B} for the front side (the 1/2" x 2-1/4" bolts are for the tailgate side), placing it first through the Conical Washer {A} (teeth / concave down) and the rail into the Tube Spacer {Q} under the rail, and into the drilled bed hole.
2. Align nut with pencil or drift pin. If needed, add the Center Slotted Shim {G} between the Large Base Rail Spacer and the \*top of the truck bed. Hand tighten the (2) bolts into the 5/8" Flange Nuts {N} seated in the mounting bracket nut tabs (Fig. 9).
3. Add the 1/2" X 2 1/4 Bolts {E} on the tailgate side through the 1/2" Conical Washers {F}, the ISR Rails {D} and Large Base Rail Spacer {C} and into the truck bed. Use the Offset Slotted Spacers {Q} and the Insulator {H} \*under the bed and into the Mounting Bracket and 1/2" Flange Nuts {L} in the nut tabs.
4. When tightening, work as you would with lugnuts on a tire, tighten evenly across to avoid binding and bed bending.
5. Make sure the hitch spade can be set down in rail slots without binding. Tighten according to the torque table below. Be cautioned that an air wrench can easily strip the connection

## Part 5: Final Installation Procedure

Place the hitch spades into ISR rail slots and install the hitch pins and clips to secure the hitch frame to the rails.

### \* NOTE:

Truck beds are not all the same and depending on the measurements used on pages 6-7, the installer may drill the required holes high or low on the corrugated channels of the truck bed. The slot-ted shims ({G} and {Q}) are designed to fit either above or below the truck bed channels to ensure a tight fit to the rail assembly (See FIG 10).



FIG. 9

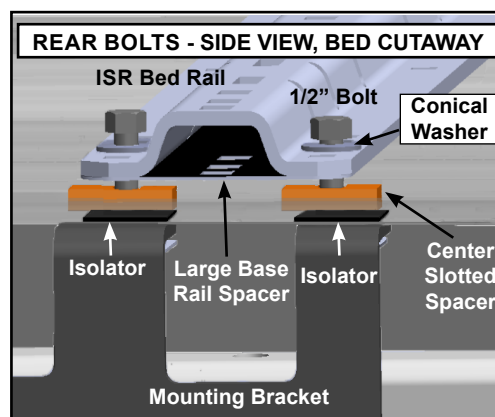
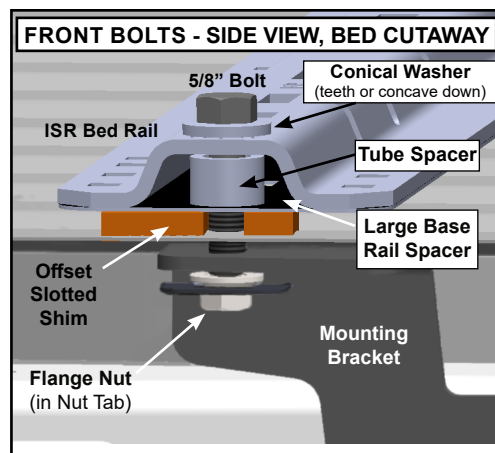
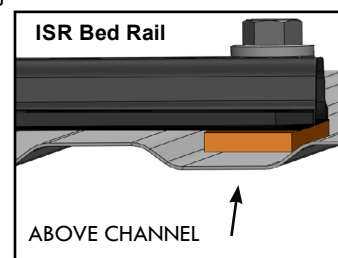
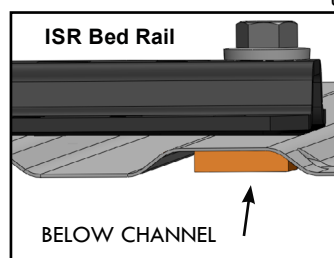


FIG. 10

PART {Q} EXAMPLE



TORQUE TABLE	
3/8" Bolt	31 ft. lbs.
1/2" Bolt	75 ft. lbs.
5/8" Bolt	151 ft. lbs.
3/4" Bolt	266 ft. lbs.



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