



**B&W Trailer Hitches**

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**NOTE:** *we recommend reading instructions before beginning the installation.*

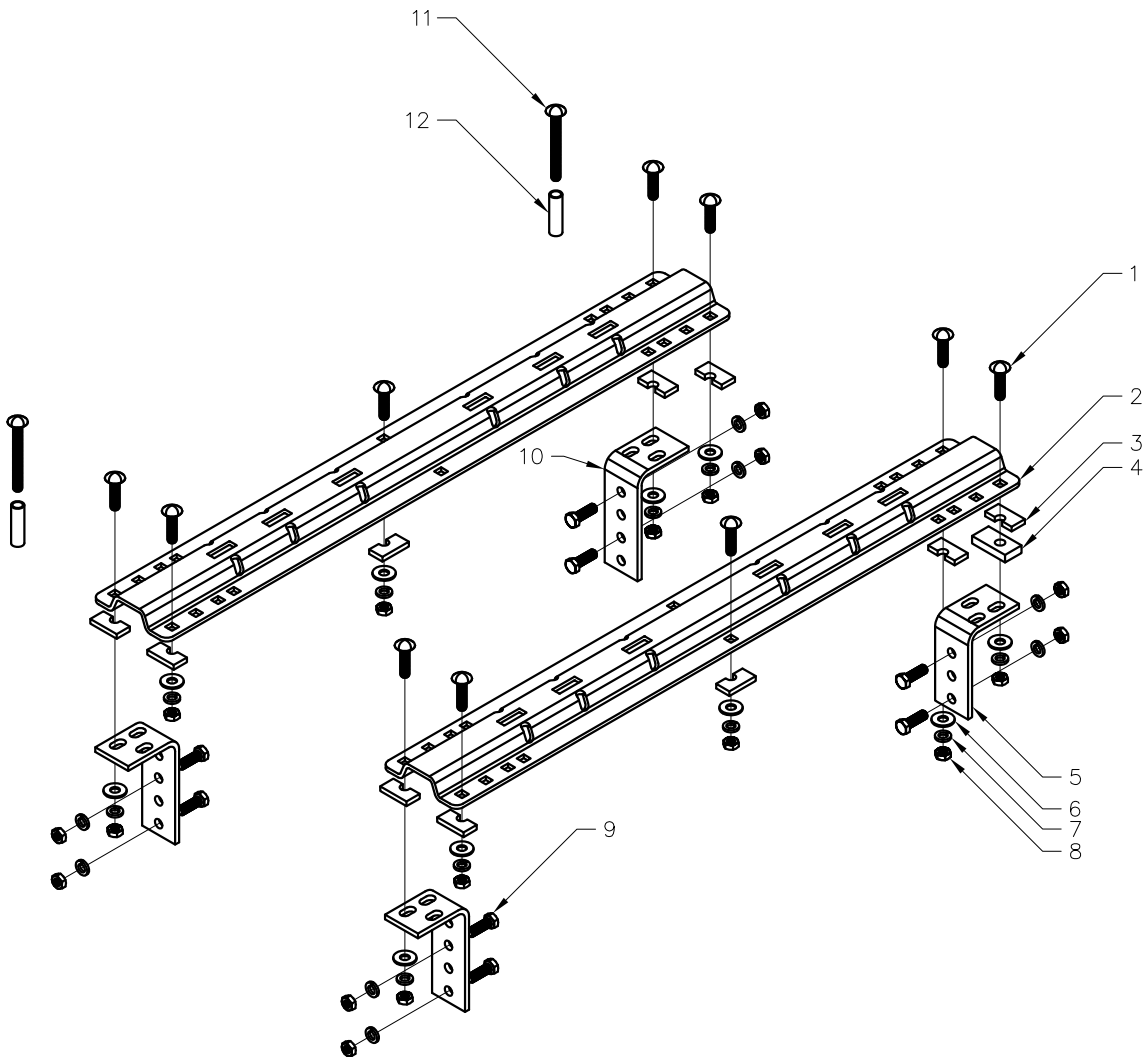
**Universal Mounting Rail Installation Instructions**

**Model 3200**

Call or Email us for Installation Support

hitches@turnoverball.com [www.turnoverball.com](http://www.turnoverball.com)

HARDWARE KIT	QTY:
1 - Carriage bolt 1/2-13 x 2"	10
2 - Mounting rail	2
3 - Slotted spacer	10
4 - Block spacer	2
5 - Short mounting bracket	2
6 - Flat washer	10
7 - Lock washer	18
8 - Finish nut	18
9 - Knurled bolt	8
10 - Long mounting bracket	2
11 - Carriage bolt 1/2-13 x 4-1/2"	2
12 - Tube spacer	2
13 - Fish wire (Not shown)	2



## TOOLS REQUIRED FOR INSTALLATION

3/16" DRILL      17/32" DRILL      1" DRILL (Some Dodge applications only)  
3/4" SOCKET AND OPEN END WRENCH      100 lb-ft TORQUE WRENCH      "C" CLAMPS

1. The following instructions provide detailed information for anchoring the B&W Patriot. Carefully read all instructions and double check measurements before drilling any part of the truck bed or frame.

**Warning:** The owner is responsible for the installation of this product. These instructions are guidelines only. Always measure both the truck and trailer prior to installation of the hitch to check for cab and bumper turning clearance.

**Warning:** On truck beds which are 6' or less in length precautions may be needed to prevent damage to the truck. On a long bed installation the center of the hitch is a minimum of 52" to the back of the cab. Short bed installations (trucks with a minimum of 38" from the cab to axle center) will require a trailer pin box extension of 13" or more to achieve a safe turning clearance.

2. Raise the rear of the truck to allow jack stands to be placed under the rear spring hanger brackets of the truck. Be sure the truck is properly blocked and restrained to prevent movement of the truck during installation. Failure to do so may result in the truck falling, causing serious injury or death.

3. Do not install mounting rails over plastic liners. Plastic liners must be removed or cut out of the way before installation. Base rails may be installed over a spray in liner. Consult installer for recommended curing time.

4. Only use hardware supplied with installation kit. All bolts and nuts are grade 5 unless otherwise specified. All hardware will not be used on all applications.

5. If your vehicle is not covered by these instructions, install each base rail so that it is connected to the vehicle frame by at least two frame brackets. Each frame bracket must be attached to the frame by at least two bolts or welding.

6. Measurements for laying out the base rails are provided for most truck installations. These measurements are given for the distance between the rearmost edge of the base rail to the end of the truck bed, see figure 2 below.

7. Layout the base rails so they are square with each other and centered between the wheel wells. Measuring two diagonal lines until they are the same will insure the rails are square, see figure 2 below.

8. Drill the 10 mounting holes, locations for your individual application will vary. For each hole first drill a 3/16" pilot hole and then finish with a 17/32" drill. Always use sharp drill bits. Install 1/2" carriage bolts into the drilled holes. Use 5/16" thick slotted spacers above or below bed to fill corrugation in bed floor. (Toyota Tundra will require additional spacer kit #3206 to be used with spacers supplied in kit 3200. See Toyota Tundra application guide for details.)

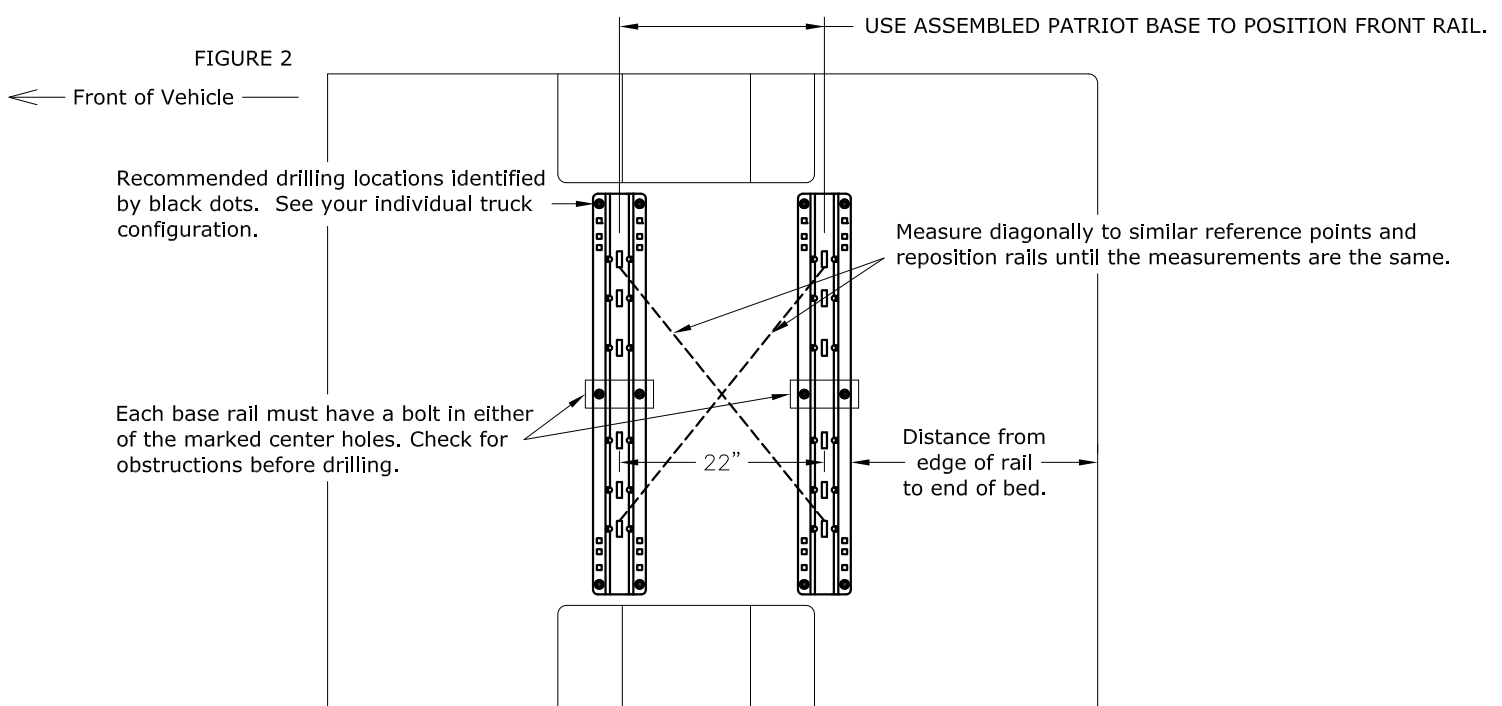
9. Under the truck bed, install the long mounting brackets onto the front rail carriage bolts and the short mounting brackets onto the rear rail carriage bolts; these can be interchanged as needed. Use washers, lock washers, and hex nuts, to secure the carriage bolts to the mounting brackets and to the bottom of the truck bed.

10. For rib neck bolts use a 17/32" drill only, failure to do so may cause bolt to fail. For each bracket drill two 17/32" holes through the truck frame. Drill locations can be located by using the mounting bracket as a guide. Select holes which will give the greatest spread between bolts. To attach mounting brackets to truck frame, install eight 1/2"-13 x 1-3/8" ribbed neck bolts, lock washers, and hex nuts. Install the ribbed neck bolts so that the threads point away from the center of the truck. Tighten each nut until the bolt head seats. Lubrication of the knurls of all rib neck bolts is recommended. Do not lubricate threads as it may cause bolts to fail.

11. Unless otherwise stated, torque all nuts to 85 lb-ft.

12. A pull wire is provided to pull rib neck bolts through frame as needed per application.

## Drill locations will vary. See individual installation for location



GM '99 Silverado, Sierra (not Sierra Classic) models. Chevy & GM '00 and newer Silverado, Sierra including HD models, and '04 & up 1500. Crew Cab with 5'8" bed

Before beginning, find the parallel rows of bed sill spot welds in bed of the truck. No drilling should be done in the 4" space between parallel rows of spot welds where the bed sill is located.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.

In later model trucks exchange the forward long brackets from one side to the other and install the driver side long bracket in row B. This will add clearance for the a brake cable hanger.

DISTANCE FROM EDGE OF RAIL TO END OF BED

8' BED: 30"

5'8" & 6'6" BED: 25-1/8"

**CAUTION:**

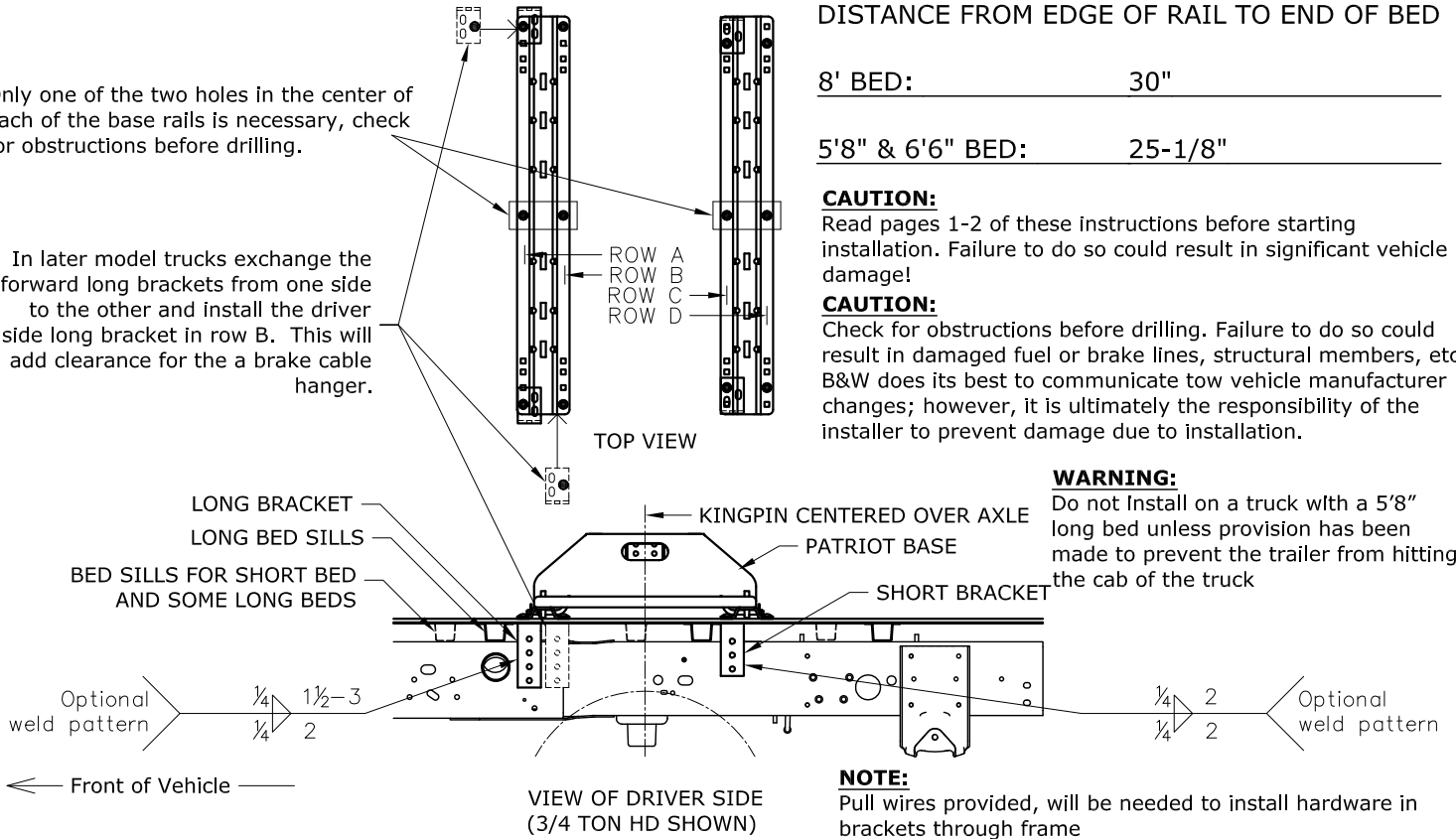
Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

**WARNING:**

Do not install on a truck with a 5'8" long bed unless provision has been made to prevent the trailer from hitting the cab of the truck



CHEVROLET/GMC 88-98 / 92-98 4-DOOR / '99 SILVERADO. SIERRA CLASSIC (WITH TAPERED FRAME) (RED TURN SIGNALS)

To begin, find the parallel rows of bed sill spot welds in bed of the truck. No drilling should be done in the 4" space between parallel rows of spot welds where the bed sill is located.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.

DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED: 30-15/16"

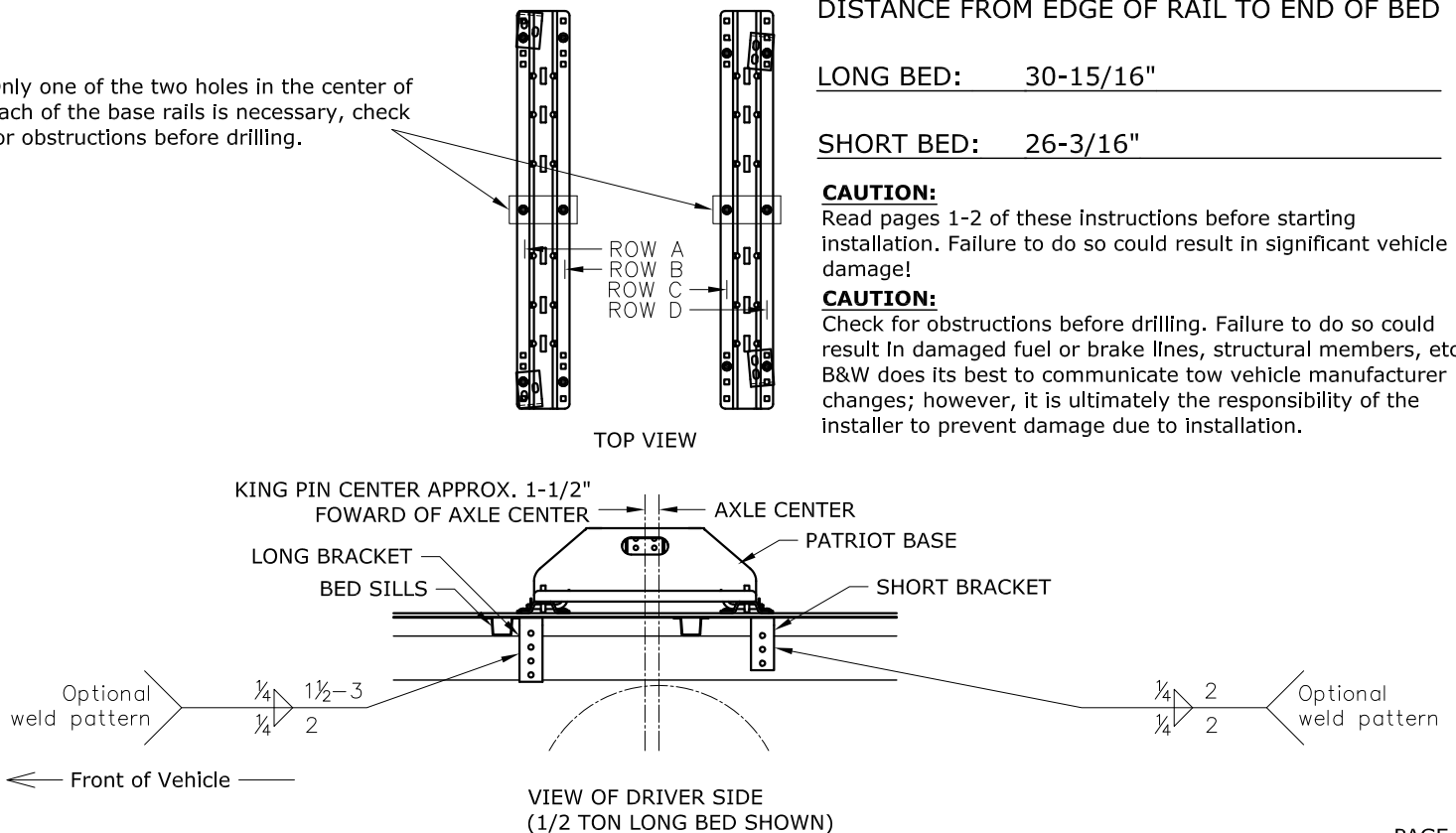
SHORT BED: 26-3/16"

**CAUTION:**

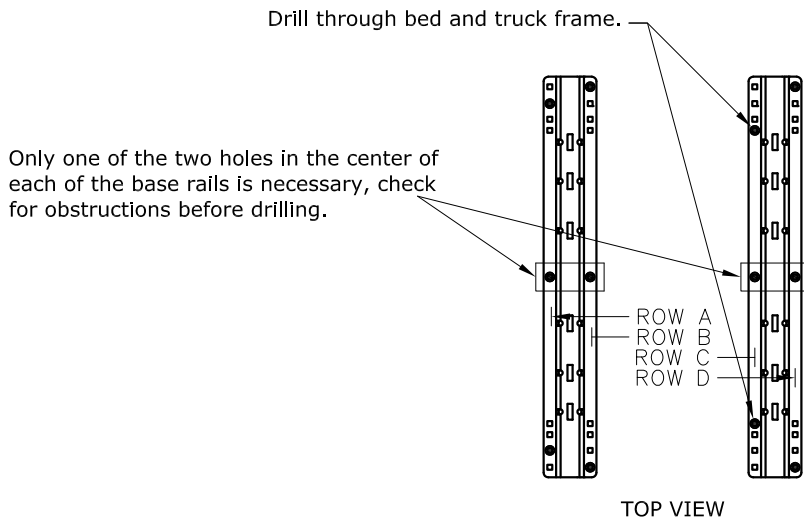
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**CAUTION:**

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Chevrolet 73 to 87 / 73 to 92 4-door (GMC) (34" Straight, with Outside Shock Absorbers)



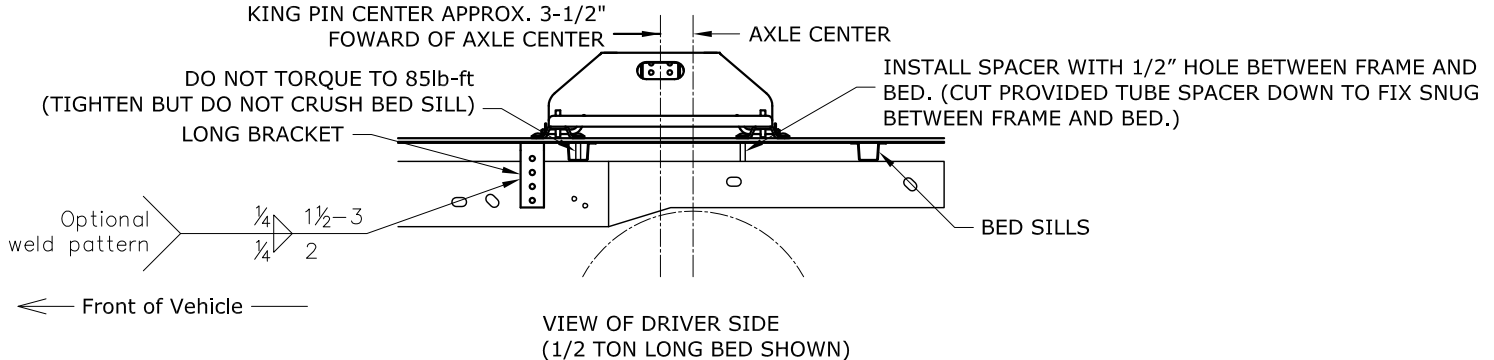
DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED & SHORT BED: 34-7/8"

**CAUTION:**  
Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

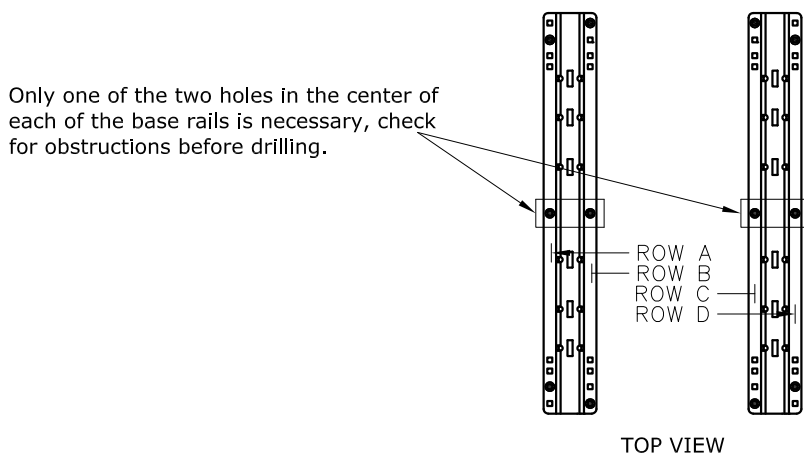
**CAUTION:**  
Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

TOP VIEW



VIEW OF DRIVER SIDE  
(1/2 TON LONG BED SHOWN)

Chevrolet 73 to 87 / 73 to 92 4-door (GMC) (34" Straight, with Inside Shock Absorbers)



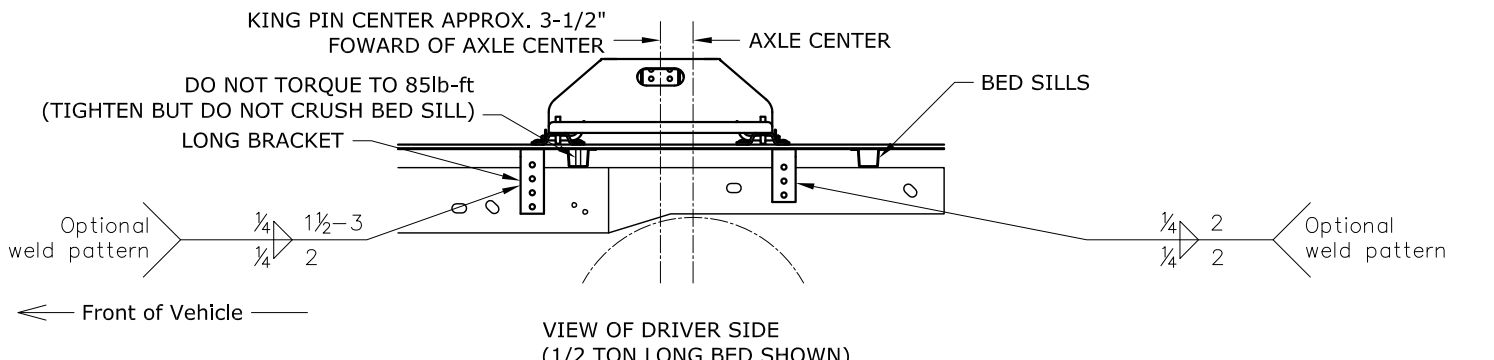
DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED & SHORT BED: 34-7/8"

**CAUTION:**  
Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**  
Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

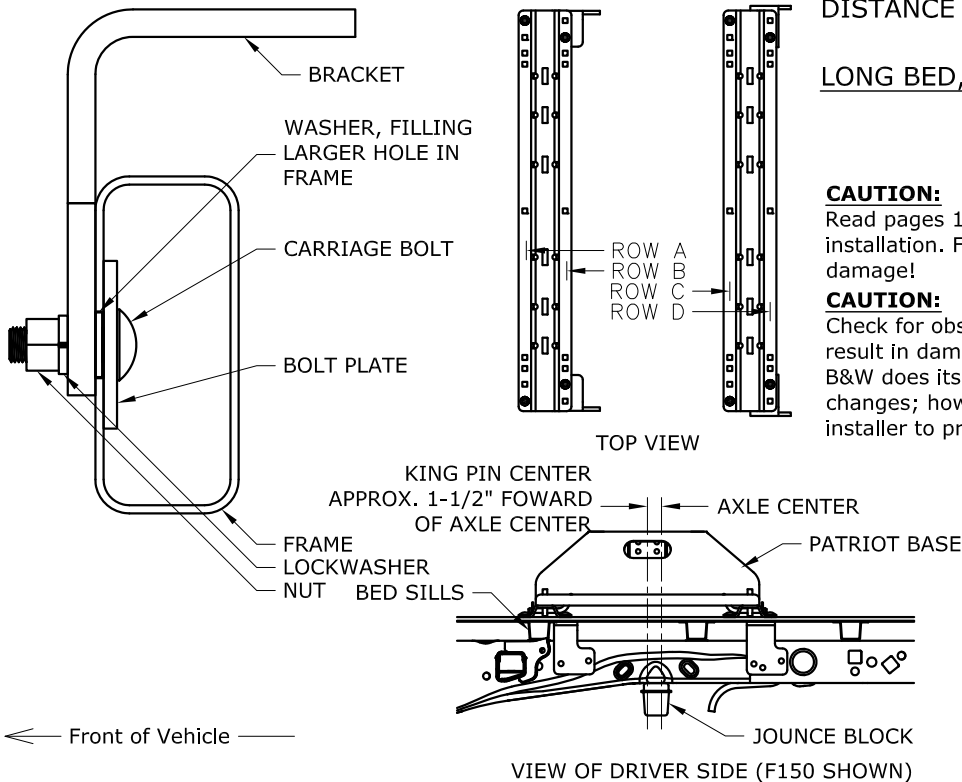
TOP VIEW



VIEW OF DRIVER SIDE  
(1/2 TON LONG BED SHOWN)

Ford '04 & UP F-150, 5.5', 6', & 8' BEDS -requires Bracket Kit 3201

1. Do not drill through both frame walls. Only drill through the wall of the frame to which bracket is mounted.
2. Before beginning, find the parallel rows of bed sill spot welds in bed of the truck. No drilling should be done in the 4" space between parallel rows of spot welds where the bed sill is located.
3. Remove the jounce block from bottom of frame on both sides.
4. When brackets are in place, one of the two front holes should line up with a hole in the frame. Use the rearward bracket hole to drill another hole in the frame.
5. Using the supplied pull wire, pull the carriage bolts and bolt plates through the hole in the bottom Rear Edge of Truck Bed frame (where the jounce block was removed). Pass the pull wire through the rear hole in each bracket. On the forward brackets, a carriage bolt, bolt plate and a 1" washer should be pulled through the forward hole. On the rearward brackets a carriage bolt, bolt plate and 13/16" washer should be pulled through the forward hole.
6. Replace the jounce blocks.



DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED, 6' BED & 5'6" BED: 29-5/16"

**CAUTION:**

Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

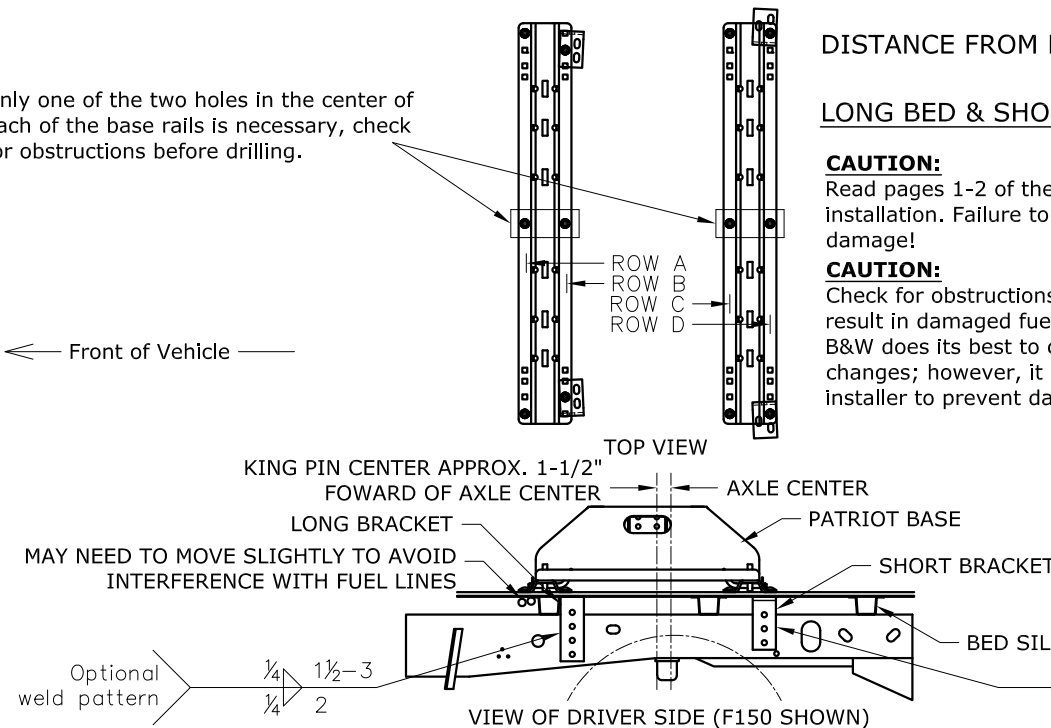
**WARNING:**

Do not install on a truck with a 5'6" long bed unless provision has been made to prevent the trailer from hitting the cab of the truck

Ford '97 to '03 F-150 & F-250 8500 GVW AND UNDER and '04 Heritage Series Body Style

1. Long and Short Brackets on Driver's Side may need to be switched to avoid interference with exhaust hanger.
2. May need to move base rail location +/- 1/2" to ensure frame brackets do not interfere with bed sills.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.



DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED & SHORT BED: 29-1/4"

**CAUTION:**

Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**

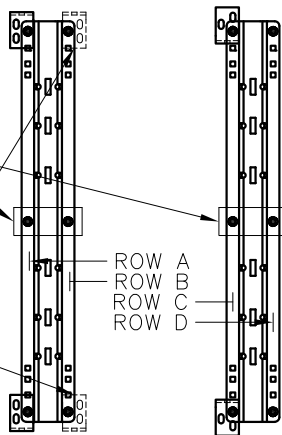
Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

FORD F-150 & F-250 THROUGH '96 / '97 F-250 OVER 8500 GVW, F350 THROUGH '97 / 1999 & NEWER F-250 / F-350 & F-450 SUPERDUTY PICKUPS (Not Cab-On-Chassis)

1. On short bed trucks, attach the Driver's Side forward bracket on Row B to avoid interference with fuel lines.
2. On trucks with overload springs, switch position of long and short brackets.
3. The base rail location may need to be adjusted  $\pm 1/2"$  to ensure frame brackets do not interfere with bed sills.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.

NOTE: Some later models will require exchanging forward long brackets from front to rear and or repositioning forward brackets to Row B. This is to avoid brake cable hangers and overload springs. Shown here by dashed lines.



DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED & SHORT BED: 32-1/2"

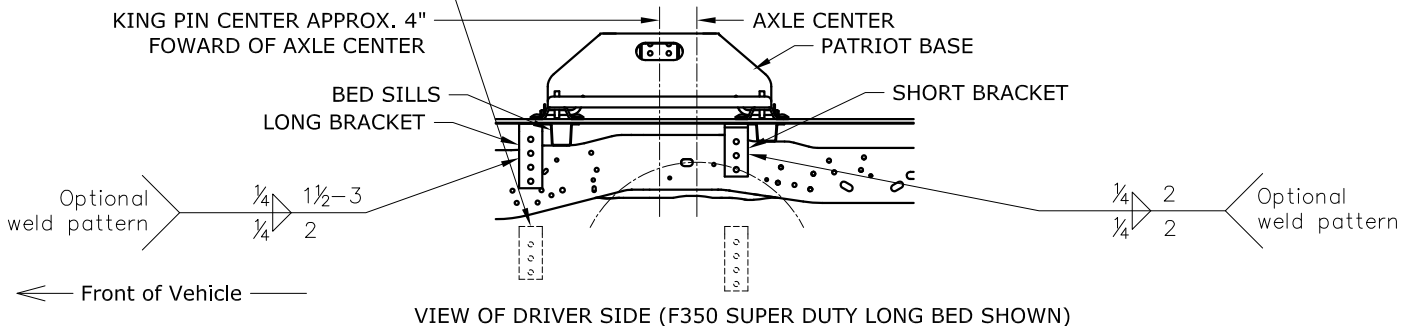
**CAUTION:**

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**CAUTION:**

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TOP VIEW



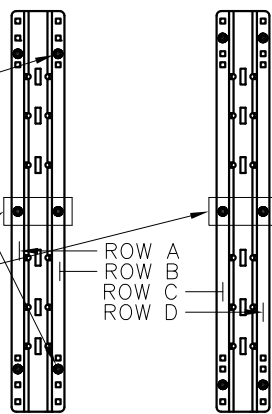
VIEW OF DRIVER SIDE (F350 SUPER DUTY LONG BED SHOWN)

2009 & UP-DODGE RAM 1500, INCLUDING CREWCAB ( USE WITH 3205 KIT )

1. Tube spacer and 4 1/2" carriage bolt used to attach through forward Bed (Row B).
2. \*\*Rib neck bolts will need to be pulled through access holes in frame with supplied pull wire (see below).
3. Do not drill thru both walls of frame. Drill only thru wall of frame to which bracket is mounted.

Drill through Bed Sill with 17/32" drill. Open up hole through truck bed only with 1" dia. drill. Drop tube spacer through hole in truck bed to avoid crushing Bed Sill when torquing 4-1/2" carriage bolt.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.



DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED: 31"

SHORT BED: 29"

**CAUTION:**

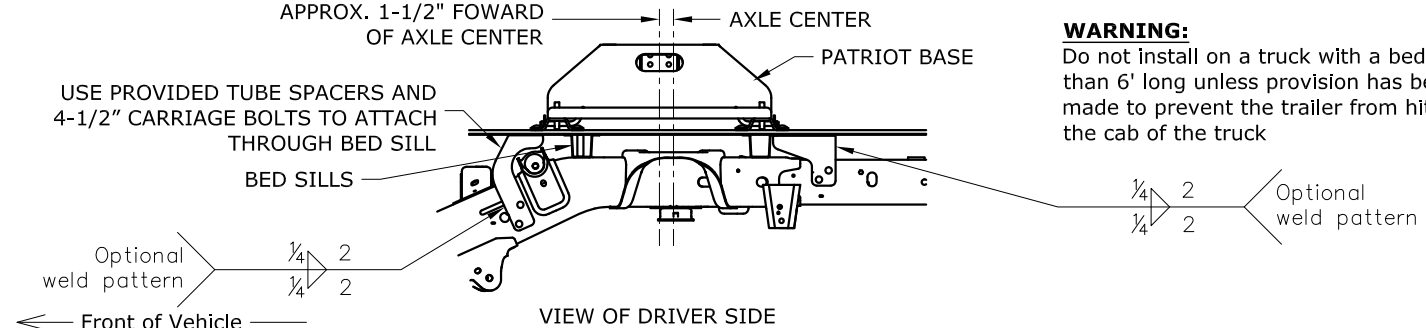
Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

KING PIN CENTER APPROX. 1-1/2" FOWARD OF AXLE CENTER

TOP VIEW



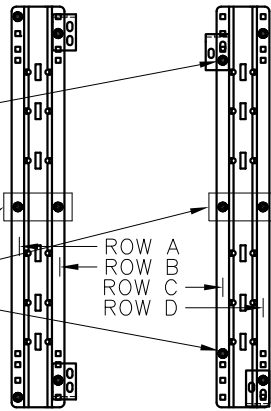
VIEW OF DRIVER SIDE

**DODGE '02 AND '08 1500 / '03 AND NEWER 2500 WITHOUT OVERLOAD BRACKETS ('03 2500 WITH OVERLOAD AND 3500 REQUIRE BRACKET KIT 3202)**

1. Use a tube spacer and 4 1/2" carriage bolt to attach rails through the rearward Bed Sill in Row C.
2. \*\*Rib neck bolts will need to be pulled through access holes in frame with supplied pull wire (see below).
3. Do not drill thru both walls of frame. Drill only thru wall of frame to which a bracket is mounted.
4. It is very important that brackets in Row B are against rear side of Bed Sill as shown. Due to dimensional instability in Bed Sill placement with the Dodge truck, interference could result when drilling in Row C. Observe caution note below and double check all areas prior to drilling.
5. \*Due to tubular frames having thinner walls than previous C channel frames, extra caution needs to be used when mounting with the optional welding.

Drill through Bed Sill with 17/32" drill. Open up hole through truck bed only with 1" dia. drill. Drop tube spacer through hole in truckbed to avoid crushing Bed Sill when torquing 4-1/2" carriage bolt.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.



TOP VIEW

**DISTANCE FROM EDGE OF RAIL TO END OF BED**

**LONG BED:** 28-5/16"

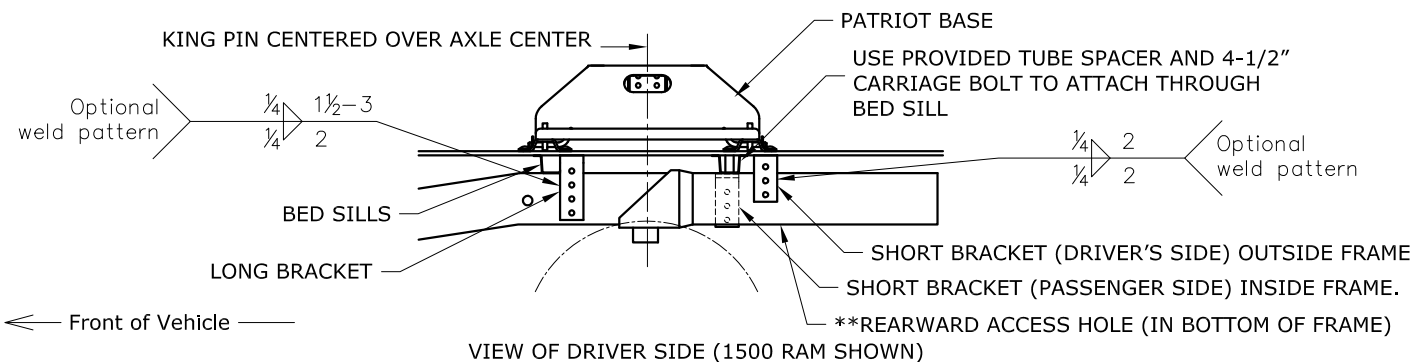
**SHORT BED:** 26-5/16"

**CAUTION:**

Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

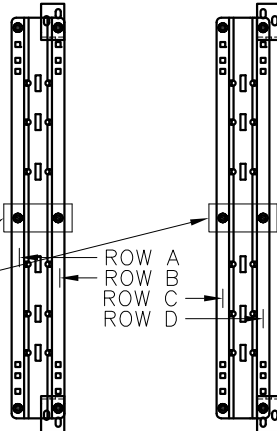


VIEW OF DRIVER SIDE (1500 RAM SHOWN)

**DODGE '94 to '01 1500 / '94 to '02 2500/3500 (FULL SIZE, SHORT AND LONG BOX)**

1. It is very important that brackets in Row B are against forward side of bed sill as shown below. Due to dimensional instability in bed sill placement with the Dodge truck, interference could result when drilling in Rows C or D. May need to move base rail location +/- 1/2" to ensure frame brackets do not interfere with bed sills.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.



TOP VIEW

**DISTANCE FROM EDGE OF RAIL TO END OF BED**

**LONG BED:** 32-7/16"

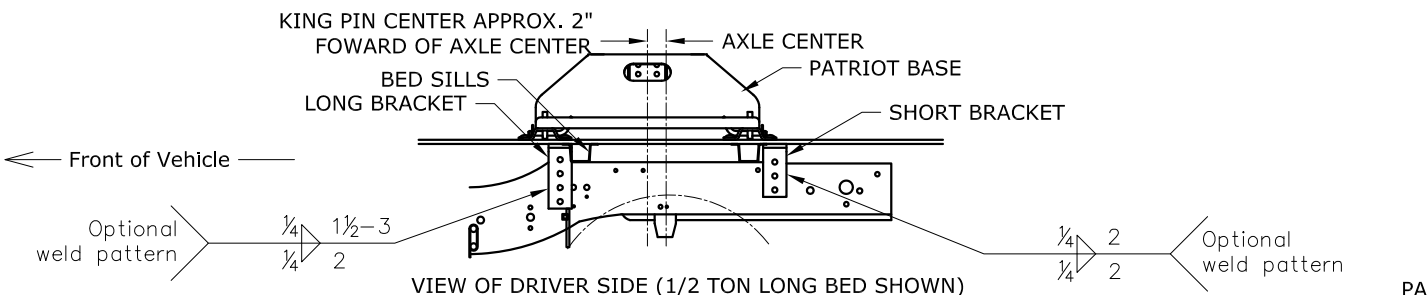
**SHORT BED:** 28-7/16"

**CAUTION:**

Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.



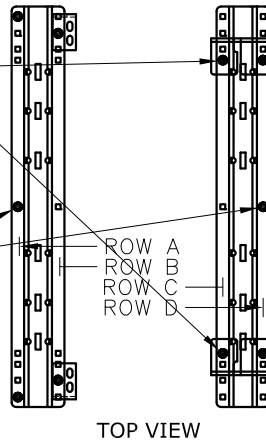
VIEW OF DRIVER SIDE (1/2 TON LONG BED SHOWN)

## DODGE '03 AND NEWER 2500 AND 3500 (REQUIRES 3202 BRACKET KIT )

1. Tube spacers and 4 1/2" carriage bolts used to attach through rearward Bed Sill (Row C).
2. \*\*Rib neck bolts will need to be pulled through rearward access holes in frame with supplied pull wire (see below).
3. Do not drill thru both walls of frame. Drill only thru wall of frame to which bracket is mounted.
4. It is very important that brackets in Row B are against rear side of Bed Sill as shown. Due to dimensional instability in Bed Sill placement with the Dodge truck, interference could result when drilling in Row C. Observe caution note below and double check all areas prior to drilling.
5. Rear brackets can be mounted to frame with (2) bolts in any combination of the three bracket holes. 6. \*Due to tubular frames having thinner walls than previous channel frames, extra caution needs to be used when mounting with the optional welding.

Drill through Bed Sill with 17/32" drill. Open up hole through truck bed only with 1" dia. drill. Drop tube spacer through hole in truck bed to avoid crushing Bed Sill when torquing 4 1/2" carriage bolt.

Drill 2 center holes shown in addition to 8 holes for 3200 kit. Install 1/2" carriage bolts, slotted spacer above or below bed to fill bed corrugation, and bolt plate below bed with washer and nut.



TOP VIEW

DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED: 28-5/16"

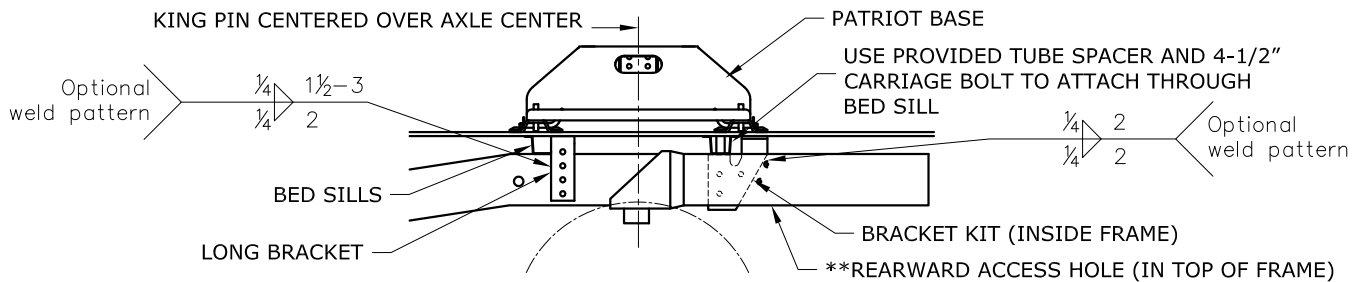
SHORT BED: 26-5/16"

### CAUTION:

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### CAUTION:

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.



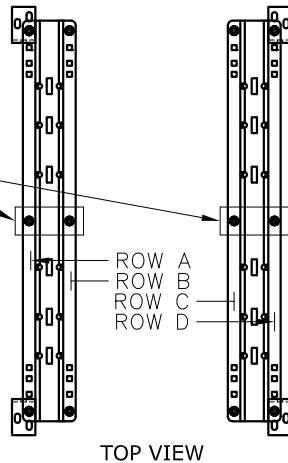
← Front of Vehicle →

VIEW OF DRIVER SIDE (2500 RAM SHOWN)

## DODGE THROUGH 93 (FULL SIZE)

1. May need to move base rail location +/- 1/2" to ensure frame brackets do not interfere with bed sills

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.



TOP VIEW

DISTANCE FROM EDGE OF RAIL TO END OF BED

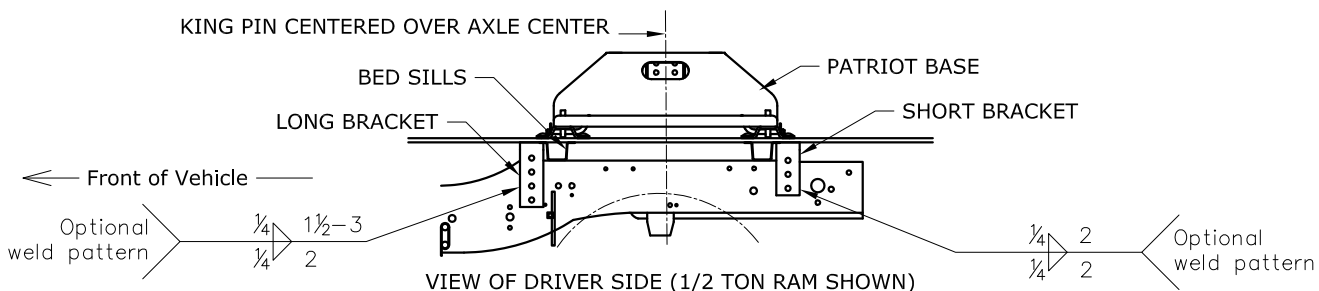
LONG BED & SHORT BED: 29-5/8"

### CAUTION:

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### CAUTION:

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← Front of Vehicle →

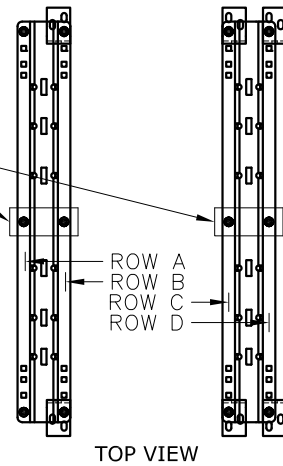
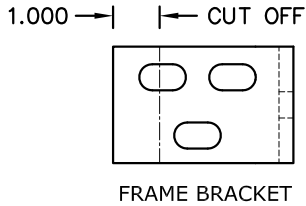
VIEW OF DRIVER SIDE (1/2 TON RAM SHOWN)



## DODGE '94 to 2004 DAKOTA

1. Before beginning, find the parallel rows of bed sill spot welds in bed of the truck. No drilling should be done in the 4" space between parallel rows of spot welds where the bed sill is located.
2. Cut 1" from top flange of brackets. Under bed, mount brackets with flanges facing out.
3. Put rear brackets on Row C for '97 to Present models. Put brackets on Row D for '96 and Earlier models.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.



DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED AND SHORT BED: 26"

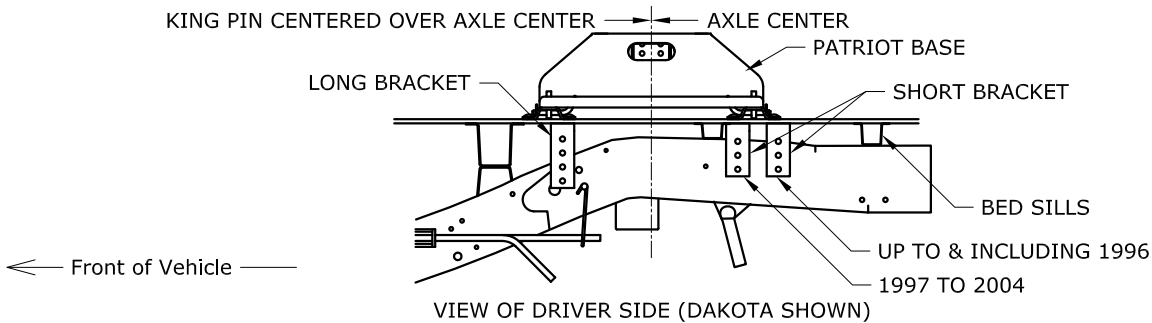
**CAUTION:**

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TOP VIEW

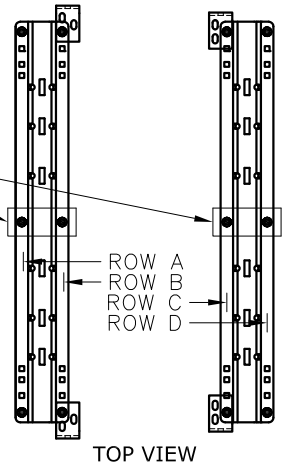


VIEW OF DRIVER SIDE (DAKOTA SHOWN)

## TOYOTA TUNDRA 2000 to 2006 (STANDARD CAB LONG BOX ONLY)

NOTE: For Toyota Tundra application, part #3206 spacer kit is required. Stack (1) 3/16" and (1) 5/16" thick slotted spacer to avoid crushing of truck bed.

Only one of the two holes in the center of each of the base rails is necessary, check for obstructions before drilling.



DISTANCE FROM EDGE OF RAIL TO END OF BED

LONG BED (ONLY): 32-1/2"

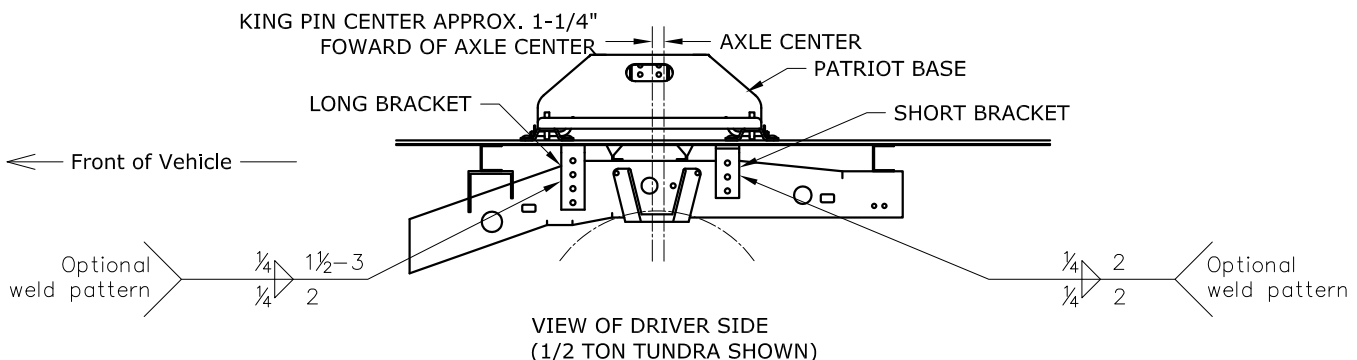
**CAUTION:**

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**CAUTION:**

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

TOP VIEW



VIEW OF DRIVER SIDE (1/2 TON TUNDRA SHOWN)

## 2007 And Newer Toyota Tundra 6.5' & 8' Beds

1. Use the 3204 service kit together with the 3200 mounting kit. Read p. 1-2 of the 3200 instruction for general information.
2. The mounting holes for Row C go through the inside of the bed sill. Make sure it lines up correctly. Drill through the bed and the top of the frame on both sides. For the Row D passenger side attachment, drill through the bed and the top of the frame as well.
3. The rear rail on the passenger side is secured directly to the frame with 3" carriage bolts provided in the 3204 kit. For the Row C a tube spacer should be placed inside the bed sill on top of the frame and under the bottom of the bed. Line up the spacer with the drilled hole before inserting the carriage bolt. Repeat for both sides See Detail Inside Frame.
4. For the Row D passenger side attachment, stack two 1/2" spacers and a bevel washer, provided in the 3204 kit, to fill the gap between the bed and the frame. Use another bevel washer, conical toothed washer, and hex nut to fasten the 3" carriage bolt in place. See Detail Inside Frame.
5. Install the long brackets on the front rail and the short bracket on the rear rail driver side using the 1-3/4" carriage bolts provided in the 58309 kit. All other attachments to the bed use 2" carriage bolts from the 3200 kit.

**DISTANCE FROM EDGE OF RAIL TO END OF BED**  
**5'6", 6'6", & 8' BED: 29-3/4"**

**WARNING:**

Do not install on a Crewmax truck with a bed 5'6" long unless provision has been made to prevent the trailer from hitting the cab of the truck

**CAUTION:**

Read pages 1-2 of these instructions before starting installation. Failure to do so could result in significant vehicle damage!

**CAUTION:**

Check for obstructions before drilling. Failure to do so could result in damaged fuel or brake lines, structural members, etc. B&W does its best to communicate tow vehicle manufacturer changes; however, it is ultimately the responsibility of the installer to prevent damage due to installation.

