

INSTALLATION OF FRONT MOUNTING KIT 1999-2007 FORD F-250/350 4X2

INSTALLATION SAFETY PRECAUTIONS

If any installation problems are encountered, please call G&B Specialties, Inc. for technical assistance before continuing with the installation process.



- Failure to heed to any of the following warnings could result in severe bodily injury and/or equipment damage.
- Read and understand this manual completely before attempting installation of the equipment.
- Installation instructions provided below only address the RAFNA Industries railgear equipment. Applicable railway company procedures and policies must be adhered to.
- Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- Do not start the vehicle with the power steering hoses disconnected. Reconnect all hoses and secure the power steering cooler if the vehicle is started.
- Ensure all removed components are given to the vehicle owner after the installation of the railgear. These components must be re-installed if the railgear is removed from the vehicle.
- Always disconnect the vehicle's battery when welding on the vehicle or railgear in order to protect the vehicle's electrical system.
- Railway Company rules governing rail travel must be observed at all times.
- Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

INSTALLATION OF FRONT MOUNTING KIT

The following procedure details the installation of the front mounting kit. The hardware required for this installation is listed in the table below.

Front Mounting Kit Installation Parts

Part Number	Description	Qty
R-2966D	Front Mounting Plate Left Side	1
R-2966P	Front Mounting Plate Right Side	1
R-2967D	Front Bumper Extension Left Side	1
R-2967P	Front Bumper Extension Right Side	1
R-2960	Railgear Mounting Shim - ½" Thick	2
R-2687AL	Railgear Front Bumper	1
R-051	Side Wand Set w/ Fasteners	1
R-2848A	Power Steering Cooler Bracket	2
R-990KIT-200	¼" UNC Gr. 8 Bolt x 1" Long	2
	¼" SAE Washer	4
	¼" UNC Gr. 8 Nylon Insert Lock Nut	2
	½" UNC Gr. 8 Bolt x 1.5" Long	6
	½" UNC Gr. 8 Bolt x 1.75" Long	10 (1999 to 2005)
		8 (2005 to 2007)
	½" UNC Gr. 8 Bolt x 2" Long	8
	½" UNC Gr. 8 Bolt x 2.25" Long	4
	½" Gr. 8 Washer	56 (1999 to 2005)
		52 (2005 to 2007)
	½" UNC Gr. 8 Nylon Insert Lock Nut	28 (1999 to 2005)
		26 (2005 to 2007)
	⅝" UNC Gr. 8 Bolt x 1.75" Long	4
⅝" Gr. 8 Washer	8	
⅝" UNC Gr. 8 Nylon Insert Lock Nut	4	

1. Remove the front bumper and front tow hooks if so equipped. Retain the front bumper and related hardware for re-installation. The tow hooks will not be re-installed.
2. Remove the complete "Blocker-Beam" assembly, including the related frame brackets, from the frame. The "Blocker-Beam" assembly will not be re-installed.
3. Remove the lower valence from the front bumper where equipped. The valence will not be re-installed.
4. Unbolt the power steering cooler from the frame leaving the hoses attached. The power steering cooler will be relocated following the installation of the railgear.
5. Cut the front of the vehicle frame as shown in the drawing.

6. Position the front mounting plates on the underside of the vehicle frame as shown. The three slots on the side of each front mounting plate should line up with the three slots on the side of the frame. The slots on the bottom of each front mounting plate should line up with the slots on the underside of the frame. The four slots on the front of each front mounting plate should line up with the four slots on the front of the frame.
7. Ensure the front mounting plates are aligned with each other and then clamp the front mounting plates tight against the front, underside, and outside of the frame.
8. Fasten each front mounting plate to the side of the frame through the holes provided with two $\frac{5}{8}$ " x 1.75" long bolts, four $\frac{5}{8}$ " washers, and two $\frac{5}{8}$ " nuts and with one $\frac{1}{2}$ " x 1.75" long bolt, two $\frac{1}{2}$ " washers, and one $\frac{1}{2}$ " nut.
9. Fasten each front mounting plate to the underside of the frame through the holes provided using two $\frac{1}{2}$ " x 2.25" long bolts, four $\frac{1}{2}$ " washers, and two $\frac{1}{2}$ " nuts in the front and using two $\frac{1}{2}$ " x 1.75" long bolts, four $\frac{1}{2}$ " washers, and two $\frac{1}{2}$ " nuts in the rear for vehicle model years prior to 2005 OR using one $\frac{1}{2}$ " x 1.75" long bolt, two $\frac{1}{2}$ " washers, and one $\frac{1}{2}$ " nut in the rear for vehicle model years 2005 and later. It may be necessary to enlarge the holes in the frame to $\frac{17}{32}$ " to fit the $\frac{1}{2}$ " bolts.
10. Torque the $\frac{1}{2}$ " fasteners to 100 ft-lbs dry and the $\frac{5}{8}$ " fasteners to 150 ft-lbs dry. Do not over torque.
11. Remove the clamps.
12. Position each front bumper extension in front of each front mounting plate as shown and fasten in place with two $\frac{1}{2}$ " x 1.75" long bolts, four $\frac{1}{2}$ " washers, and two $\frac{1}{2}$ " nuts. Torque the $\frac{1}{2}$ " fasteners to 100 ft-lbs dry. Do no over torque.
13. Center the railgear front bumper on the front bumper extensions and fasten in place with four $\frac{1}{2}$ " x 1.5" long bolts, eight $\frac{1}{2}$ " washers, and four $\frac{1}{2}$ " nuts. Torque the $\frac{1}{2}$ " bumper fasteners to 35 ft-lbs dry. Do not over torque.
14. Fasten the side wands to the railgear front bumper with the supplied fasteners. Bend the side wand mounting tabs and drill the bumper as required.

Following the installation of the front railgear, the power steering cooler will not fit in its original position. G&B Specialties supplies brackets to reposition the power steering cooler as described in the following steps.

15. Disconnect the two hoses from the power steering cooler and plug them.
16. Loosely bolt the supplied power steering cooler brackets to the power steering cooler with two $\frac{1}{4}$ " x 1" long bolts, four $\frac{1}{4}$ " washers, and two $\frac{1}{4}$ " nuts.
17. Position the power steering cooler in its original orientation just above the railgear such that the power steering cooler brackets straddle the railgear hydraulic cylinder mounts just below the hydraulic cylinder mount gussets.

18. Make sure the power steering cooler does not come in contact with any component of the hydraulic system or the railgear in both the road and rail positions. It may be necessary to move the railgear hydraulic hoses or lock valves out of the way.
19. Ensure the vehicle's battery is disconnected and then weld the power steering cooler brackets to the hydraulic cylinder mounts.
20. Unplug and reconnect the power steering cooler hoses. New hoses may be required. These hoses are not included in the Rafna kit.
21. Torque the ¼" fasteners to 12 ft-lbs dry. Do not over torque.

Following the installation of the front railgear and the power steering cooler, the vehicle front bumper will fit in its original position with trimming as described in the following steps. (If it is not desirable to trim the front bumper, the installer will have to leave the bumper off.)

22. The vehicle front bumper must be modified and reinforced by the installer to fit in its original position over the front railgear. The railgear front mounting plates provide a location for re-installation of the front bumper side brackets. The vehicle front bumper may have to be drilled to match all four holes in each front mounting plate and the front of the frame.
23. Re-install the vehicle front bumper on the front mounting plates with eight ½" x 2" long bolts, sixteen ½" washers, and eight ½" nuts.
24. Re-install the vehicle front bumper side braces and fasten them to the front mounting plates with two ½" x 1.5" long bolts, four ½" washers, two ½" nuts.
25. Align the bumper and then torque the ½" fasteners to 100 ft-lbs dry. Do not over torque.

**OPERATION, SERVICE AND PARTS
OF FRONT MOUNTING KIT
1999-2007 FORD F-250/350 4X2**

OPERATION SAFETY PRECAUTIONS

If any operating, services or parts problems are encountered, please call G&B Specialties, Inc. for technical assistance.



- Failure to heed to any of the following warnings could result in severe bodily injury and/or equipment damage.
- Read and understand this manual completely before attempting operation of the railgear equipped vehicle.
- Operating instructions provided below only address the RAFNA Industries railgear equipment. Applicable railway company procedures and policies must be adhered to.
- Railway company rules governing rail travel must be observed at all times.
- Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

OPERATION AND SERVICE OF FRONT MOUNTING KIT

With the front mounting kit installed on this vehicle, it may be operated as normal, however the front bumper is located further forward than standard. Side wands are located on the front bumper to aid in determining the length and width of the vehicle. Caution must be used when operating the vehicle.

Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

The front mounting kit must be serviced regularly to avoid damage to the equipment. Table 1 below provides the Recommended Service Schedule and Table 2 provides Standard Fastener Torque Values.

Table 1: Recommended Service Schedule

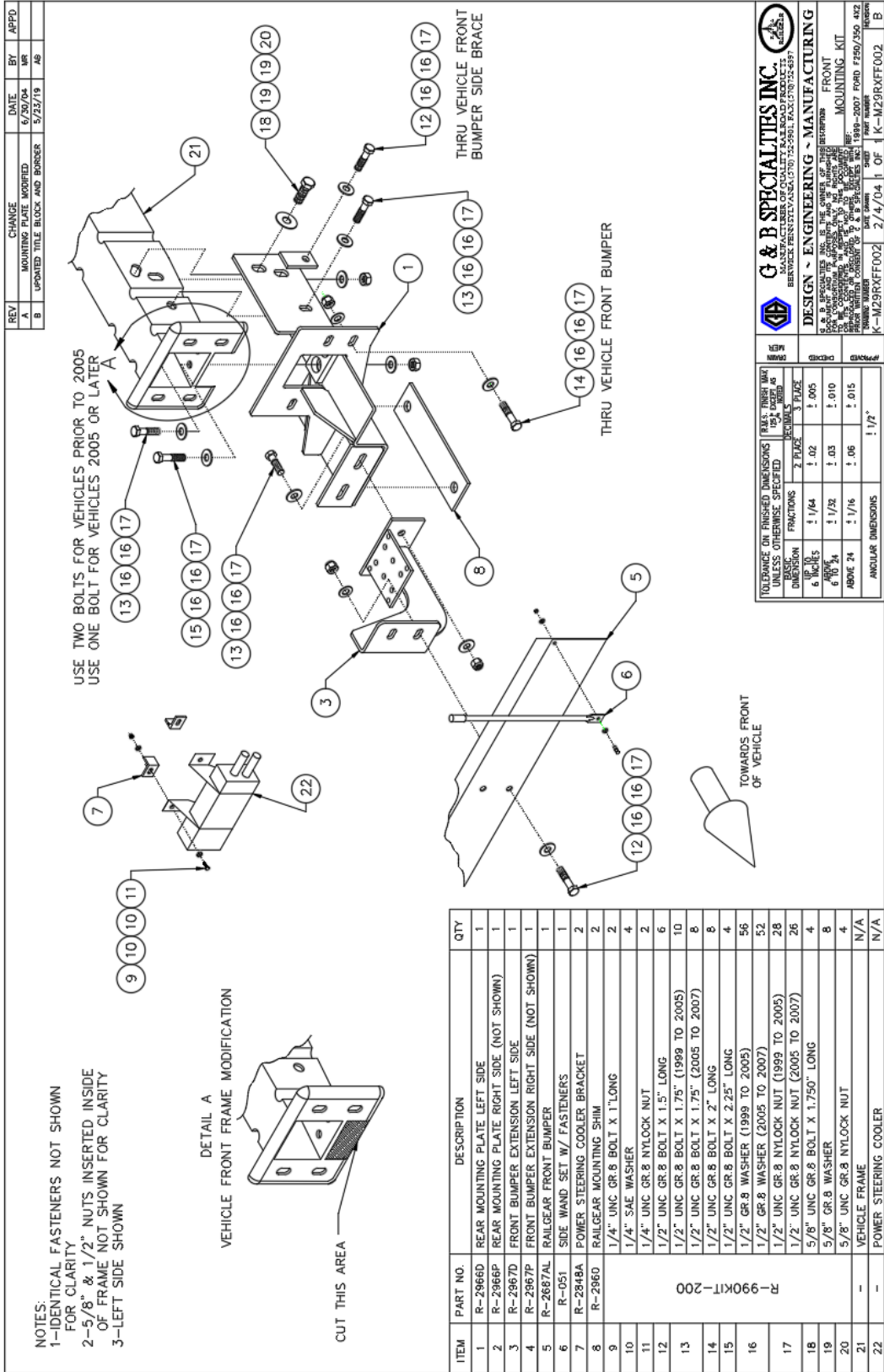
Service Required	Initial 100 km (62 Miles) of road and/or rail use	Daily	Weekly	Monthly
Inspect front mounting kit fasteners (re-torque if required)		✓	✓	✓

Table 2: Standard Fastener Torque Values

Fastener Size	Fastener Torque Value (ft-lbs) Dry
1" UNC Gr. 8 Fasteners	250
¾" UNC Gr. 8 Fasteners	175
5/8" UNC Gr. 8 Fasteners	150
½" UNC Gr. 8 Fasteners	100
½" UNC Gr. 2 Fasteners	35
3/8" UNC Gr. 8 Fasteners	40
¼" UNC Gr. 8 Fasteners	12

PARTS OF FRONT MOUNTING KIT

REV	CHANGE	DATE	BY	APPD
A	REAR MOUNTING PLATE MODIFIED	6/30/04	SP	
B	UPDATED TITLE BLOCK AND BOMBER	5/23/19	AB	



TOWARDS FRONT OF VEHICLE

ITEM	PART NO.	DESCRIPTION	QTY
1	R-2966D	REAR MOUNTING PLATE LEFT SIDE	1
2	R-2966P	REAR MOUNTING PLATE RIGHT SIDE (NOT SHOWN)	1
3	R-2967D	FRONT BUMPER EXTENSION LEFT SIDE	1
4	R-2967P	FRONT BUMPER EXTENSION RIGHT SIDE (NOT SHOWN)	1
5	R-2687AL	RAILGEAR FRONT BUMPER	1
6	R-051	SIDE WAND SET W/ FASTENERS	1
7	R-2948A	POWER STEERING COOLER BRACKET	2
8	R-2960	RAILGEAR MOUNTING SHIM	2
9		1/4" UNC GR 8 BOLT X 1" LONG	2
10		1/4" SAE WASHER	4
11		1/4" UNC GR 8 NYLOCK NUT	2
12		1/2" UNC GR 8 BOLT X 1.5" LONG	6
13		1/2" UNC GR 8 BOLT X 1.75" (1999 TO 2005)	10
14		1/2" UNC GR 8 BOLT X 1.75" (2005 TO 2007)	8
15		1/2" UNC GR 8 BOLT X 2" LONG	4
16		1/2" UNC GR 8 BOLT X 2.25" LONG	4
17		1/2" GR 8 WASHER (1999 TO 2005)	56
18		1/2" GR 8 WASHER (2005 TO 2007)	52
19		1/2" UNC GR 8 NYLOCK NUT (1999 TO 2005)	28
20		1/2" UNC GR 8 NYLOCK NUT (2005 TO 2007)	26
21		5/8" UNC GR 8 BOLT X 1.750" LONG	4
22		5/8" GR 8 WASHER	8
		5/8" UNC GR 8 NYLOCK NUT	4
		VEHICLE FRAME	N/A
		POWER STEERING COOLER	N/A

NOTES:
 1—IDENTICAL FASTENERS NOT SHOWN FOR CLARITY
 2—5/8" & 1/2" NUTS INSERTED INSIDE OF FRAME NOT SHOWN FOR CLARITY
 3—LEFT SIDE SHOWN

CUT THIS AREA

DETAIL A
 VEHICLE FRONT FRAME MODIFICATION

TOLERANCE ON FINISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED		FRACTIONS		DECIMALS	
BASIC DIMENSION	2 FRAZES	± 1/64	± .02	± .005	± .010
6 INCHES & ABOVE	2 FRAZES	± 1/32	± .03	± .015	± .025
ABOVE 24	2 FRAZES	± 1/16	± .06	± .015	± .025
ANGULAR DIMENSIONS				± 1/2°	



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DESIGN - ENGINEERING - MANUFACTURING

FRONT MOUNTING KIT

DATE DRAWN: 2/4/04
 DATE CHECKED: 2/4/04
 DRAWN BY: SP
 CHECKED BY: AB

REVISIONS: FRONT MOUNTING KIT

ITEM NO: K-M29RXFF002 | OF 1 | K-M29RXFF002 | B