



INSTALLATION INSTRUCTIONS

MID-FRAME BUMPER

Part Number: 99850

Application: 2017 Ford F-150 RAPTOR

GENERAL SAFETY PRECAUTIONS

Your safety, and the safety of others, is very important. To help you make informed decisions about safety, we have provided installation and operating instructions and other information on labels and in this guide. This information alerts you to potential hazards that could hurt you or others. It is not possible to warn you about all potential hazards associated with this product, you must use your own good judgment.

CARELESS INSTALLATION AND OPERATION CAN RESULT IN SERIOUS INJURY OR EQUIPMENT DAMAGE. READ AND UNDERSTAND ALL SAFETY PRECAUTIONS AND OPERATING INSTRUCTIONS BEFORE INSTALLING AND OPERATING THIS PRODUCT.

This guide identifies potential hazards and has important safety messages that help you and others avoid personal injury or death. **WARNING** and **CAUTION** are signal words that identify the level of hazard. These signal words mean:

▲WARNING signals a hazard that could cause serious injury or death, if you do not follow recommendations. **▲CAUTION** signals a hazard that may cause minor to moderate injury, if you do not follow recommendations.

This guide uses **NOTICE** to call attention to important mechanical information, and **Note:** to emphasize general information worthy of special attention.

▲ WARNING

IMPACT AND MOVING PARTS ENTANGLEMENT HAZARD

Failure to observe these instructions could lead to severe injury or death

- **Always** take time to fully read the Instructions and/or Operations Guide, and/or Basic Guide to Winching Techniques, in order to understand your winch and its operations.
- **Always** use extreme caution when drilling on any vehicle. Make sure that all fuel lines, brake lines, electrical wires, and other objects are not punctured or damaged when/if drilling on the vehicle. Thoroughly inspect the area to be drilled (on both sides of material) prior to drilling, and relocate any objects that may be damaged. Failure to inspect the area to be drilled may result in vehicle damage, electrical shock, fire or personal injury.
- **Always** wear safety glasses when installing this kit. A drilling operation will cause flying metal chips. Flying chips can cause eye injury.
- **Always** use extreme caution when cutting and trimming during fitting.
- **Always** remove jewelry and wear eye protection.
- **Never** lean over battery while making connections.
- **Never** route electrical cables:
 - o Across any sharp edges.
 - o Through or near moving parts.
 - o Near parts that become hot.
- **Always** insulate and protect all exposed wiring and electrical terminals.
- **Always** install terminal boots as directed in installation instructions.
- **Always** use appropriate and adequate care in lifting components into place.
- **Always** insure components will remain secure during installation and operation.
- **Always** tighten all nuts and bolts securely, per the installation instructions.
- **Always** perform regular inspections and maintenance on the plow mechanism, fasteners, cable and related hardware.
- **Always** replace all worn or damaged parts before operating.
- **Never** operate this WARN product with damaged or missing parts.

Read installation and operating instructions thoroughly.

WARN INDUSTRIES, INC. 12900 S.E. Capps Road,
Clackamas, OR USA 97015-8903, 1-503-722-1200, FAX: 1-503-722-3000
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⚠ CAUTION

MOVING PARTS ENTANGLEMENT HAZARD

Failure to observe these instructions could lead to minor or moderate injury

- **Always** take time to fully read and understand the installation and Operations Guide included with this product.
- **Never** operate this product if you are under 16 years of age.
- **Never** operate this product when under the influence of drugs, alcohol or medications.

Read installation and operating instructions thoroughly.

NOTICE

EQUIPMENT DAMAGE

- **Always** refer to the Installation and Specification Guide, supplied in the winch kit, for all wiring schematics and specific details on how to wire this WARN product to your vehicle.

Read installation and operating instructions thoroughly.

BEFORE YOU BEGIN

NOTICE



This product may interfere with driver assist systems such as adaptive cruise control and parking assist systems that have sensors or cameras installed in the bumpers or front grill area. If your vehicle is equipped with any of these systems or features, consult your vehicle owner's manual before installing this product. These systems may need to be disabled as a result of installing this product.

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TOOLS REQUIRED

- Standard wrenches
- Standard sockets

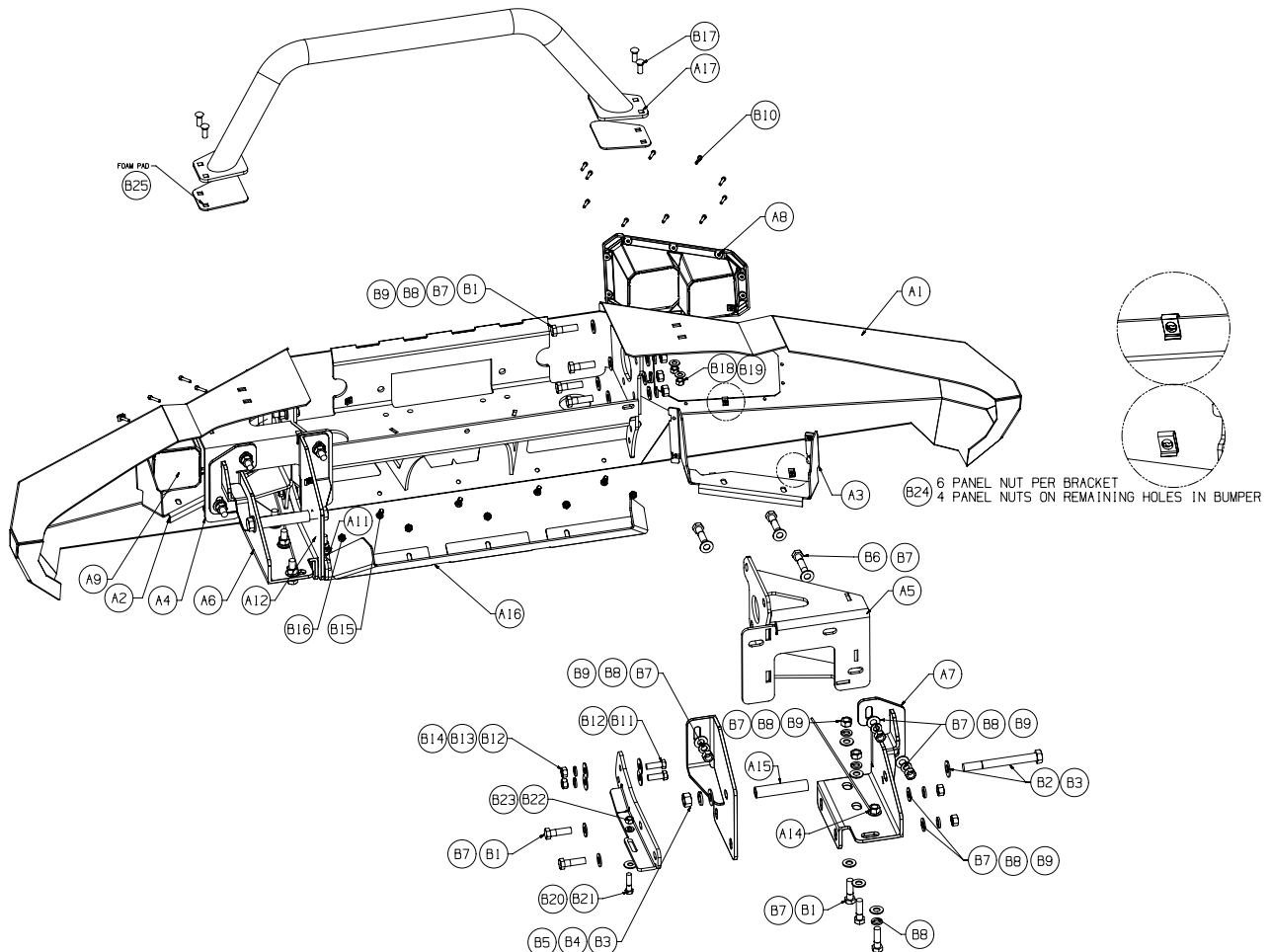
TORQUE SPECIFICATIONS

Please use the recommended torque specifications when assembling this product unless otherwise specified in the instructions.

FASTENER SIZE	FASTENER TORQUE		FASTENER SIZE	FASTENER TORQUE	
	lb-ft	(N.m)		lb-ft	(N.m)
1/4"	8	(11)	M4	(2)	3
5/16"	17	(23)	M5	(4.5)	6
3/8"	30	(40)	M6	(7.5)	10
7/16"	48	(66)	M8	(18)	25
1/2"	74	(100)	M10	(37)	50
9/16"	106	(144)			
5/8"	148	(200)			
3/4"	269	(364)			

PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
A0	100903	LH LIGHT BRACKET	1	B1	22535	CPSCR ½-13 X 1 ¾ HEX HEAD BOLT	18
A0	100904	RH LIGHT BRACKET	1	B2	68896	5/8-11 X 6 HEX HEAD BOLT	2
A1	99548	FRONT BUMPER	1	B3	68959	5/8 FLAT WASHER	4
A4	99814	LH FRONT FRAME BRACKET	1	B4	6820	5/8 HELICAL REG SPRING WASHER	2
A5	99816	RH FRONT FRAME BRACKET	1	B5	6821	5/8-11 HEX NUT	2
A6	95434	LH BOTTOM FRAME BRACKET	1	B6	11294	1/2-13 X 2 HEX HEAD CAPSCREW	6
A7	95435	RH BOTTOM FRAME BRACKET	1	B7	9213	½ FLAT WASHER	48
A8	94888	RH LIGHT BEZEL	1	B8	2596	WASHER ½ HELICAL REG SPRING	24
A9	94889	LH LIGHT BEZEL	1	B9	1323	NUT 1/2 -13	22
A10	99811	RH EXTENSION BRACKET	1	B10	91541	CPSCR SOCKET HD 10-24 X X1.25 SS	20
A11	99810	LH EXTENSION BRACKET	1	B11	1824	CPSCR 7/16-14 X 1-1/4 HEX HEAD BOLT	4
A12	95427	INNER FRAME BRACKET LH	1	B12	7676	7/16 FLAT WASHER	8
A13	95398	INNER FRAME BRACKET RH	1	B13	2146	7/16 LOCK WASHER	4
A14	38452	NUT STICK ASSY	2	B14	2583	HEX NUT 7/16-14	4
A15	79913	TUBE SPACER	2	B15	90327	SOC HD CPSCR 5/16-18 X 1 ¼	5
A16	95514	AIR SCOOP BRACKET	1	B16	90328	NUT LOCKING 5/16-18	5
A17	99844	LIGHT BAR	1	B17	79213	BOLT 3/8-16	4
				B18	11524	WASHER FLAT 3/8	4
				B19	6779	NUT LOCKING 3/8-16	4
				B20	8160	CPSCR 3/8-16 X 1 1/4	2
				B21	2195	FLAT WASHER	2
				B22	1829	LOCK WASHER	2
				B23	1828	HEX NUT 3/8-16	2
				B24	96329	PANEL NUT	20
				B25	104089	FOAM PAD	2



INSTALLATION INSTRUCTIONS



Figure 1

1. Remove license plate and frame.

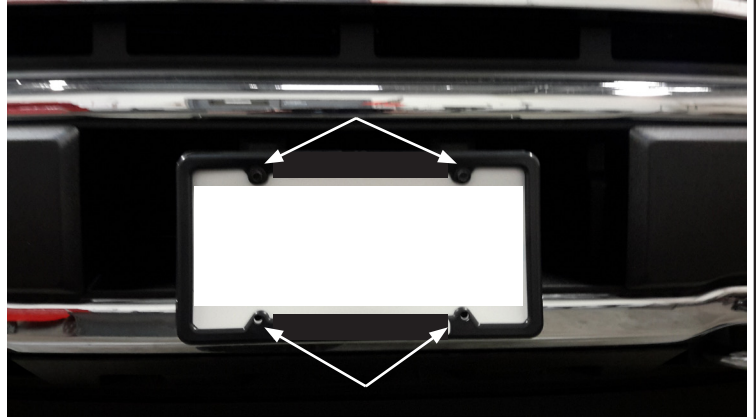


Figure 2

2. Using a screwdriver, carefully remove plastic bumper inserts and clips, from bumper.



Figure 3

3. Remove the adaptive cruise control module by removing the three nuts holding it in place. You may need to use a screwdriver to carefully pry off.
4. Unplug module and completely remove to expose bumper bolts. **NOTE: In order to reinstall the adaptive cruise control module, you will need to purchase an aftermarket bracket which positions the module behind the grill.**

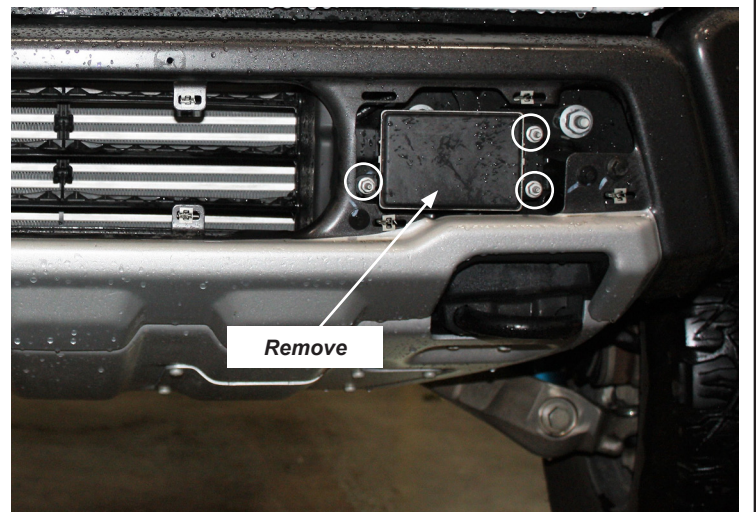


Figure 4

INSTALLATION INSTRUCTIONS

5. From inside the bumper, remove the four front bumper mounting nuts.



Figure 5

6. From behind each corner of the bumper, remove bumper support rods.

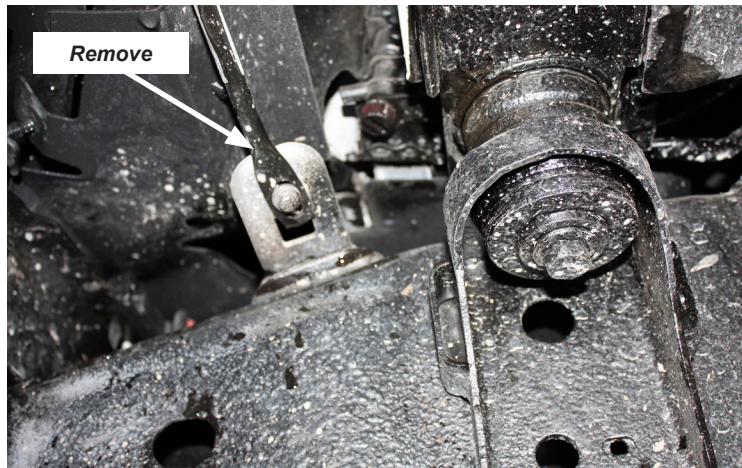


Figure 6

7. With assistance, hold bumper in place, while you remove the last remaining nut (each side) from behind bumper.

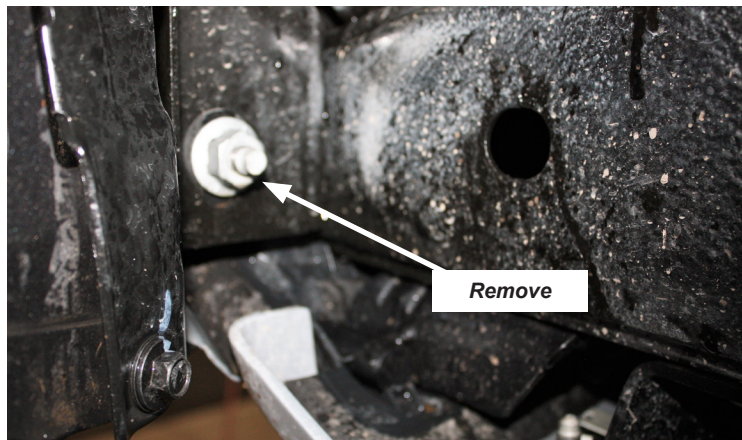


Figure 7

8. While still holding bumper in place, tilt bumper forward slightly to unclip the three christmas tree clips.

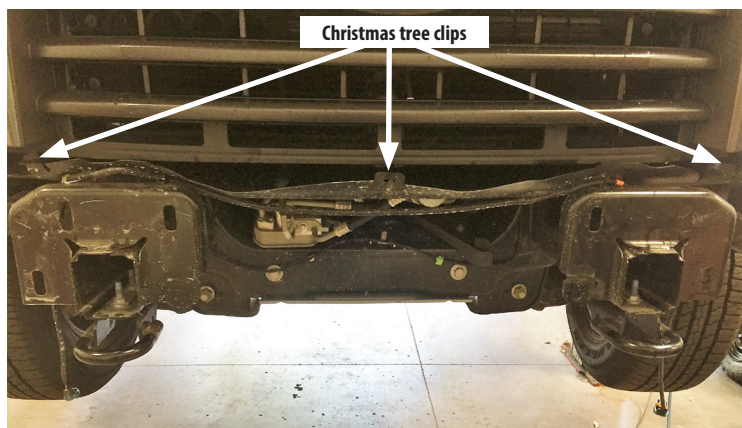


Figure 8

9. Carefully remove bumper completely.

CAUTION

- Always use assistance when moving or lifting heavy parts.

10. Remove the 6 bolts securing skid plate. Carefully, set skid plate and hardware aside, you will be reinstalling two of the six bolts later on.



Figure 9

11. Remove skid plate hanger. **NOTE: You will not be reusing.**
12. Remove the two bolts from tow hook and remove tow hook completely. **NOTE: You will not be reusing.**
13. Repeat steps for other side.

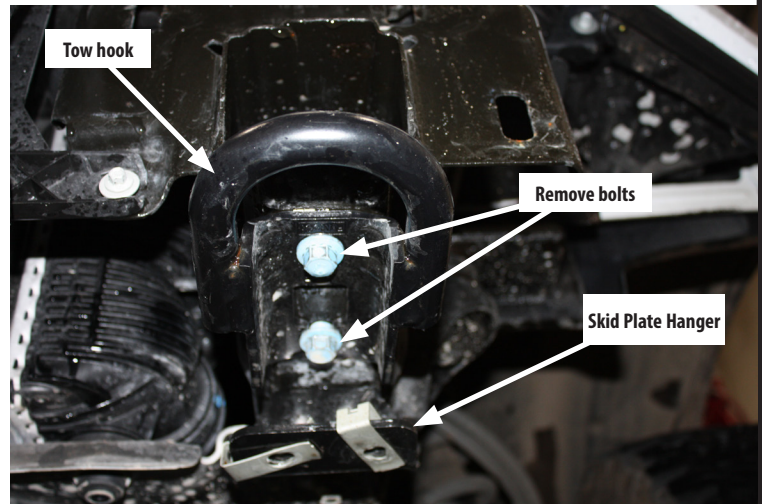


Figure 10

14. If model is equipped with eco-boost, you will want to cut the soft rubber from the around the innercooler to aid in bumper installment.



Figure 11

15. Insert spacer (A15) into the vehicle frame (behind front flange).
16. Repeat for other side.



Figure 12

INSTALLATION INSTRUCTIONS

17. Hold left hand bottom frame bracket (A6) in place, using washer (B3) on bolt (B2). **Bracket will hang in place until fully secure. Do not tighten at this time.**

18. Repeat for right side.

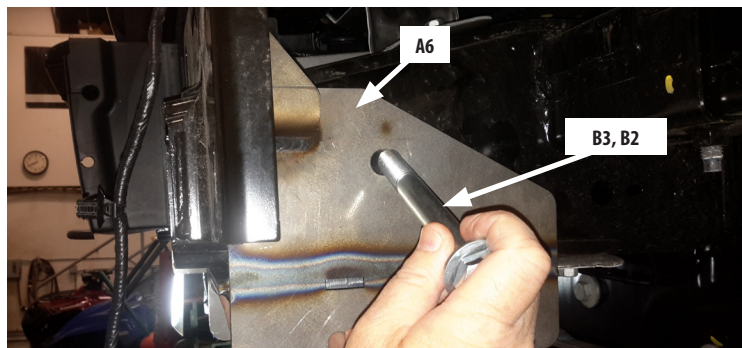


Figure 13

21. Align left hand inner bracket (A12) with bolt from previous step.

22. Secure in place (**hand tighten only**) with washer (B3), lock washer (B4) and nut (B5).

23. Do not tighten at this time.

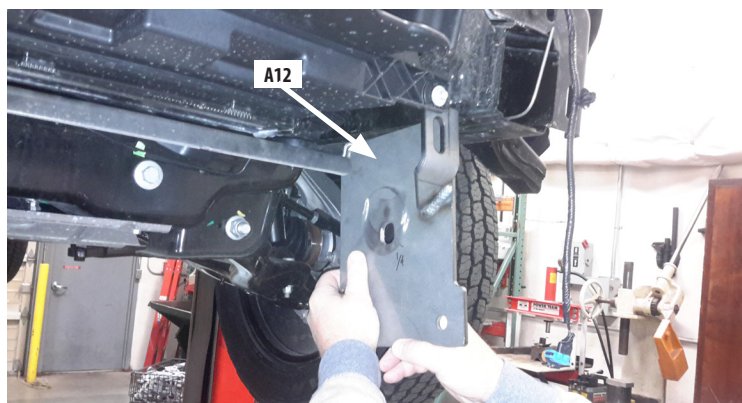


Figure 14

24. Using three bolts and washers (B1 & B7), attach the left hand bottom frame bracket (A6). Insert the first two bolts (B1) with washers (B7) through bracket and vehicle frame. Fasten with washer (B7), lock washer (B8) and nut (B9).

25. Insert the last (**most rear**) bolt (B1) with lock washer (B8) and washer (B7). Fasten with nut assembly (A14).

26. Check position of bracket, making sure it is as close to the back of the vehicle's bumper mounting flange as possible. Once in place, tighten bottom hardware at this time.

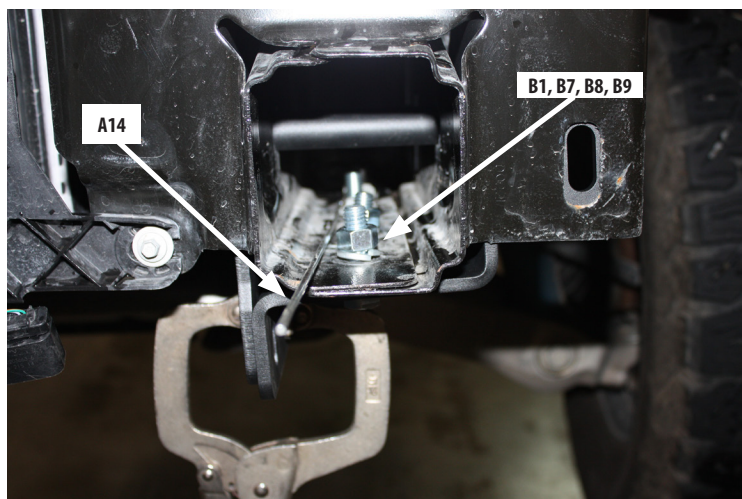


Figure 15

27. Clip excess nut assembly wire handle off, making even with end of frame.

28. Align inner bracket holes with outer bracket slots. Clamp in place.

29. Tighten 5/8" bolt (B2) installed in step 17.

30. Remove clamp and tighten all hardware at this time.

31. Repeat steps for other side.

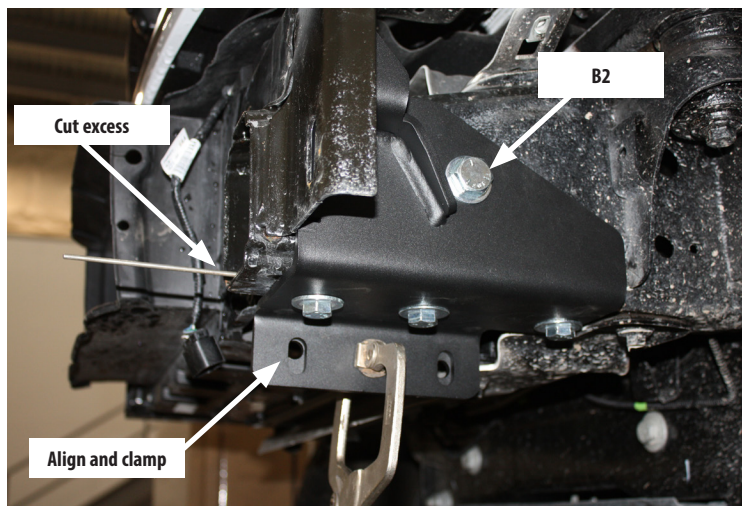


Figure 16

INSTALLATION INSTRUCTIONS

32. Install front frame brackets (A4 & A5) using hardware B6, B7, B8 and B9. Refer to exploded view on page 3.

Do not tighten lower brackets until bumper is on.

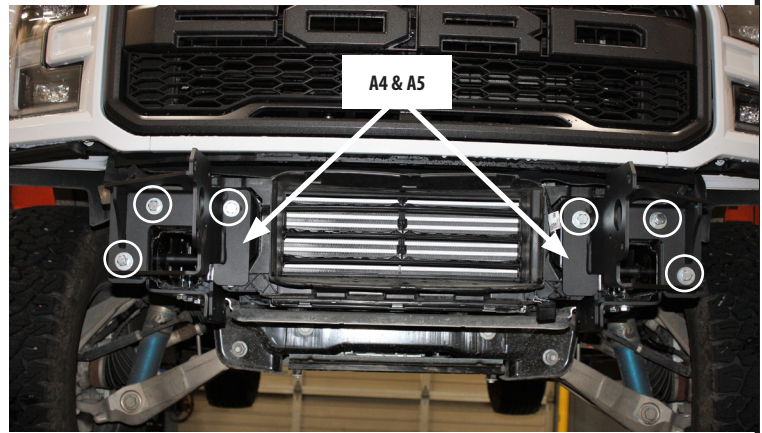


Figure 17

33. Install the light bar:

- Locate light bar foam pads (B25) in your kit.
- Place light bar in place (on top of bumper) and insert one foam pad between the bumper and light bar, being sure to line up mounting holes.
- Secure light bar and foam pads to bumper using fasteners (B17).

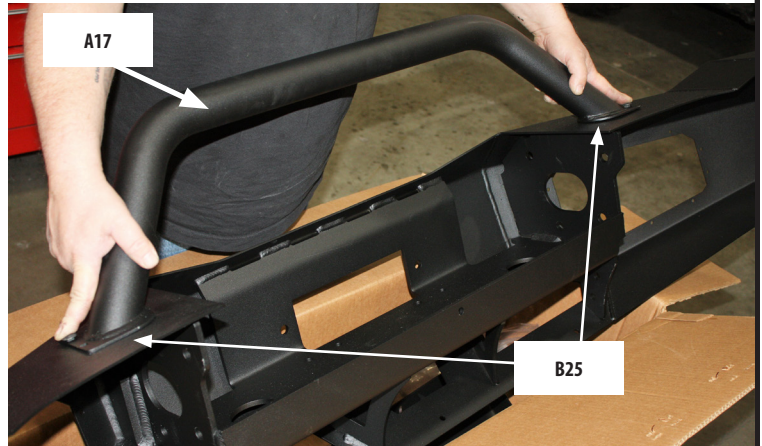


Figure 18

34. To set the spacing between the front frame brackets:

- Measure the outside to outside of inner bumper ribs.



Figure 19

- Measure the distance from inside to inside of brackets on truck and space and center brackets accordingly.



Figure 20

CAUTION

- Always use assistance when moving or lifting heavy parts.

35. Slide bumper (A1) in place and loosely attach to front frame brackets using B1, B7, B8 and B9. Do not tighten at this time.



Figure 21

36. Install extension brackets A10 and A11 to front frame bracket (*Bumper shown off in picture for clarity*) and frame bracket. Fasten with B1, B7, B8 and B9.

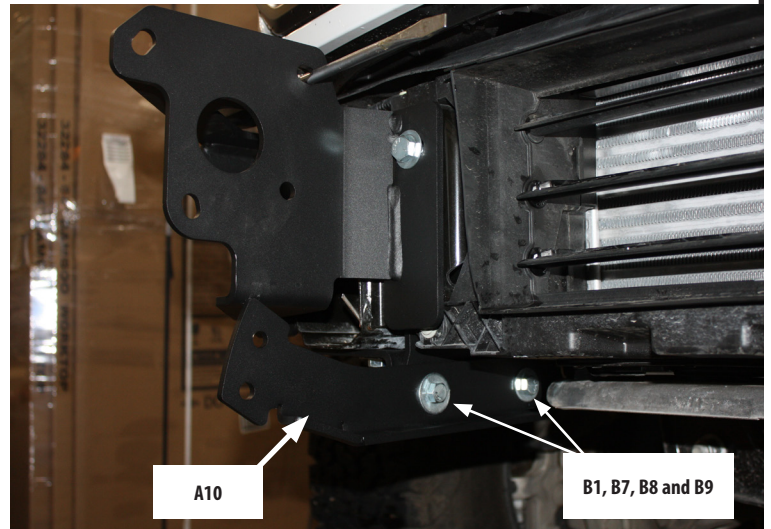


Figure 22

38. Install rear hardware (B11, B12, B13 and B14) to secure extension bracket to bottom of bumper.

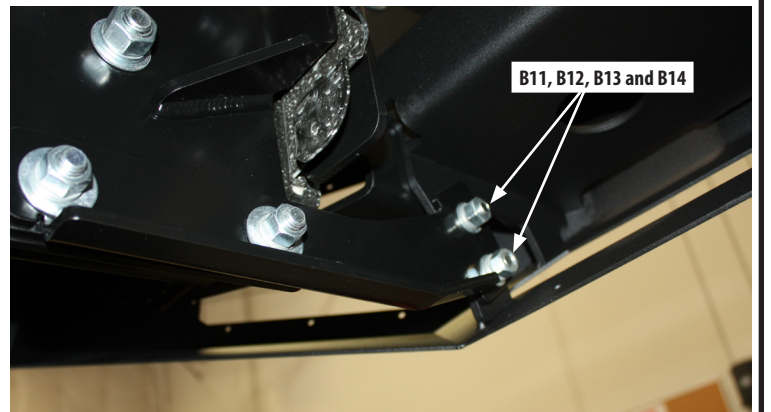


Figure 23

39. With assistance, adjust bumper and tighten all hardware at this time.

40. **For Models with intercooler feature ONLY:** Install air scoop (A16) to bottom of bumper. Fasten with hardware B15 and B16.

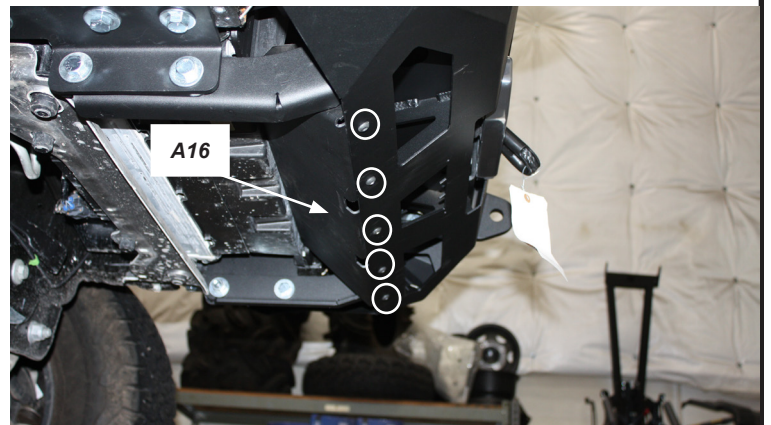


Figure 24

41. Before installing the skid plate, you will need to trim corners to allow clearance of lower bumper frame brackets. Carefully hold skid plate up to mark corners to trim.



Figure 25

42. First, install rear portions of skid plate with spacer bar (as previously installed by factory)
43. Second, install front skid plate piece. You will need to drill two new holes to allow for two B20, B21, B22 and B23 hardware in the front corners of the skid plate, in alignment with front lower bumper bracket slots.

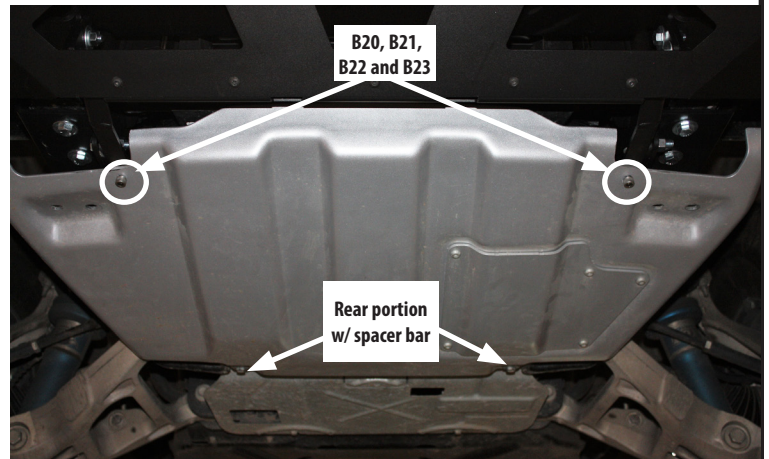


Figure 26

44. While holding light bracket (A2) in place (from under and behind bumper), line up light bezel (A9) through front bumper light port to bracket. Secure pieces together with ten stainless steel socket head screws (B10). Review exploded view on page 3.
45. Repeat for other side.

NOTE: Light bezels are equipped with removable panels for lights. Lights show installed sold separately.



Figure 20

46. Installation is now complete.

MAINTENANCE / CARE

1. Inspect all parts on the winch, winch mount, and related hardware prior to each use. Replace all hardware that appears rusted or deformed.
2. Inspect all nuts and bolts on the winch, winch mount, and related hardware prior to each use. Tighten all nuts that appear to be loose. Stripped, fractured, or bent bolts or nuts need to be replaced.
3. Check all cables prior to use. Replace cables that look worn or frayed.
4. Check all moving or rotating parts. Remove debris that may inhibit the part from moving freely.



Figure 23