Serial Number



# BX88420 & BX88421 Mud Flap System Installation Instructions



## Adjustable Mud Flap System BX88420

Attaches to a 2" Receiver, 3/8" Thick, 24" x 24" Wide Adjust from 67-14" to 96-3/4", Trim from 24" to 10-3/4"

#### BX88421

Attaches to a 2-1/2" Receiver, 3/8" Thick, 24" x 24" Wide Adjust from 67-14" to 96-3/4", Trim from 24" to 10-3/4"

Please read these Installation Instructions in their entirety prior to installing or operating this equipment.



Consumer assumes all risks associated with product performance after installation. Blue Ox™ Mud Flap System will not protect everything and everyone from harm. Results may vary depending upon road surface and conditions, vehicle types, weather conditions, installation, and driving input. Please apply common sense to you expectations relating to product performance.

## **Important**

**Exhaust Systems** 

**Note:** Any Modifications to the factory installed exhaust system may void your manufacturer's warranty.

#### Car Washes

You must remove rock guard system before entering any drive-through car wash.

Prop 65

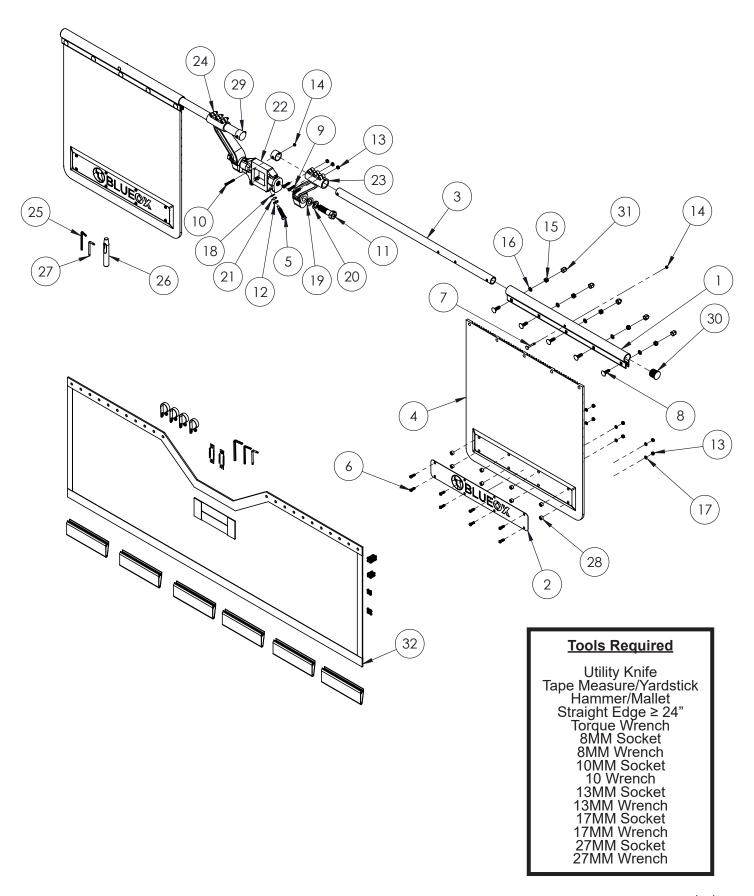
**WARNING**: This product can expose you to chemicals including chromium and acrylonitrile, which is known to the state of California to cause cancer, birth defects, or reproductive harm. For more information go to <a href="https://www.P65Waring.ca.gov">www.P65Waring.ca.gov</a>.

#### **Clearance**

Center Hub Requires a Minimum of 1" Clearance.



Bolt Torque Conversion Table					
Inch-Pound (in-lbs)	Foot Pounds (ft-lbs)	Newton-Meters (N-m)	Kilogram-Centimeters (kgf-cm)		
20	1.7	2.3	23		
30	2.5	3.4	34		
70	5.87	7.9	79		
80	6.7	9.0	90		
180	15	20	203		
1500	125	169	1690		

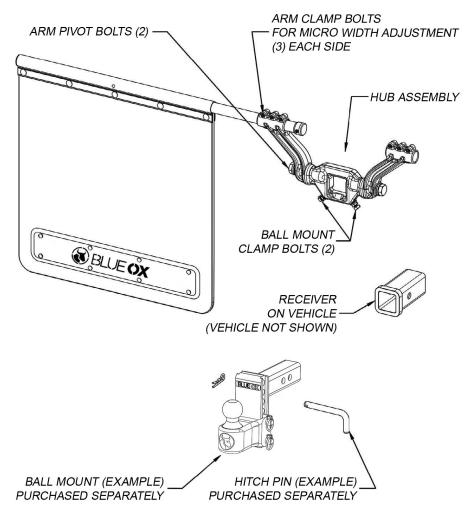


Item No.	Part No.	<u>Description</u> Q	ty.
		. Flap Clamp	
2	. 101-10876	.Trim Plate	.2
3	. 104-1058	. Flap Support Rod	.2
4	. 150-0121	. MudFlap	.2
5	. 201-1157	. M10-1.5MM x 45, HH Bolt, Grade 8.8, Ext. Tip, ZP	.2
6	. 201-1158	. M6-1MM x 20, Bttn Hd Tmpr Rsstnt Torx, Grd 6	16
7	. 201-1159	. M5-0.8MM x 40, Carriage Bolt, Grade 8, ZP	.2
8	. 201-1160	. M8-1.25MM x 30, Carriage Bolt, Grade 8, ZP	10
9	201-1161	. M6-1MM x 25, Socket Head, Hex Drive, Grade 6	.6
10	. 201-1162	. M5-0.8MM x 40, Hex Head Bolt, Grade 8.8, ZP	.2
11	. 201-1163	. M18-2.5MM x 65, Hex Head Bolt, Grade 10.9	.2
12	. 202-0259	. M10 x 1.5MM, Jam Nut, ZP	.2
13	. 202-0260	. M6 x 1MM, Grade 6H, Nylon Insert Lock Nut, ZP2	22
14	. 202-0261	. M5 x 0.8MM, Nylon Insert Lock Nut, ZP	.4
15	. 202-0262	. M8 x 1.25MM, Nylon Insert Lock Nut, ZP	10
16	. 203-0107	.8MM Flat Washer, ZP	10
17	. 203-0208	.6MM Flat Washer, Oversized, ZP	16
18	. 203-0209	. 10MM x 20MM OD Flat Washer, ZP	.2
19	. 203-0210	. 18MM Flat Washer, ZP	.2
20	. 203-0211	. 18MM Split Washer, ZP	.2
21	. 203-0212	. 10MM Split Washer, ZP	.2
22	.210-0241(shown)	. 2" Center Hub Forged	.1
	210-0244(BX88421)	. 2-1/2" Center Hub Forged	.1
23	.210-0242	. Hub Arm Forged, Right	.1
24	. 210-0243	. Hub Arm Forged, Left	.1
25	. 229-1235	.5MM Allen Wrench	.1
26	. 229-1236	. 1/2" Bolt Hole Punch	.1
27	. 229-1237	.6MM Tamper Resistant Torx Wrench	.1
28	.230-0099	. M6 Unthreaded Spacer, Aluminium	16
29	.290-0646	. Rod End Cap	.2
30	.290-0647	.Flap End Cap	.2
		. Nut Cover	
32	.BX88430	. Rock Screen Kit	.1

#### Important:

Use only genuine factory replacement parts on your hitch. Do **NOT** substitute homemade or non-typical parts. If a bolt is lost or in need of replacement, for your safety and the preservation of your hitch, be sure to use a replacement bolt of the same grade (In most cases it will be Grade 5, please reference the parts list above). Replacement parts may be ordered through Blue Ox®. Failing to follow and/or altering these installation instructions in either installation or required equipment will void the manufacturer's warranty.

Figure 1



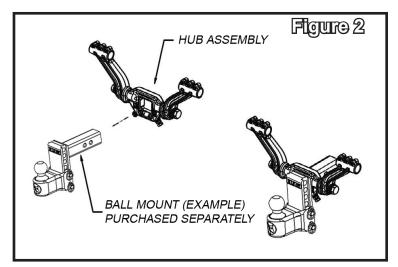
## **Assembly Hints:**

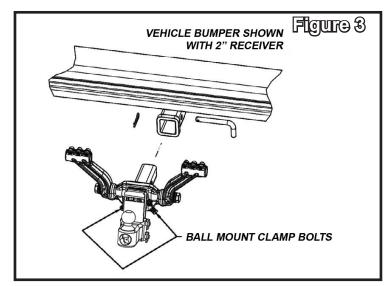
- Refer to **Figure 1** for component names and general definitions. Names in ALL CAPITALS refer to parts named in the illustrations.
- It may be easier to assemble the system while attached to a BALL MOUNT on the vehicle. However, it may also be assembled on a floor or workbench.
- The MUD FLAP length may require cutting to fit your specific vehicle. Be sure of the required length by measuring with full tongue weight attached.

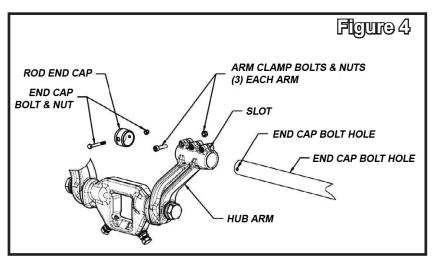
#### **Assembly Instructions:**

Account for all parts listed in the Parts List

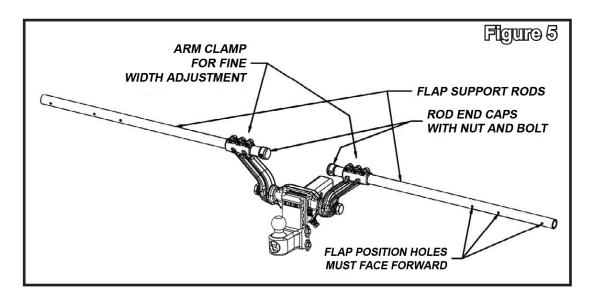
- Slide HUB ASSEMBLY on to BALL MOUNT and insert into vehicle RECEIVER HITCH.
  - See Figures 2 & 3.
- Secure the BALL MOUNT with HITCH PIN. Adjust HUB ASSEMBLY to desired position.
- 3. Tighten the two (2) M10
  BALL MOUNT CLAMP
  BOLTS to hold CENTER
  HUB in place. (For
  assembly only)
  See Figure 3.
- 4. Loosen or Remove all three M6 ARM CLAMP BOLTS from each HUB ARM. Carefully insert the two (2) FLAP SUPPORT RODS through HUB ARMS. Place ROD END CAP over the end of rods, hex side facing away from vehicle, insert END CAP BOLT through END CAP BOLT HOLE, tighten securely with M5 NYLON INSERT HEX NUT.



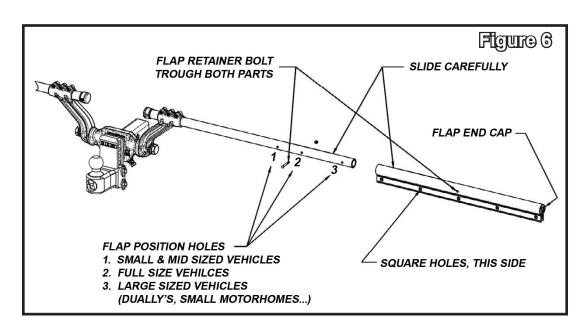




- 5. Re-install M6 ARM CLAMP BOLTS and M6 NYLON INSERT HEX NUTS back into HUB ARMS after the SUPPORT ROD is inserted. (Do not tighten yet.)
- 6. Position the left and right FLAP SUPPORT RODS so the width adjustment holes face forward horizontally. **Figure 5.**

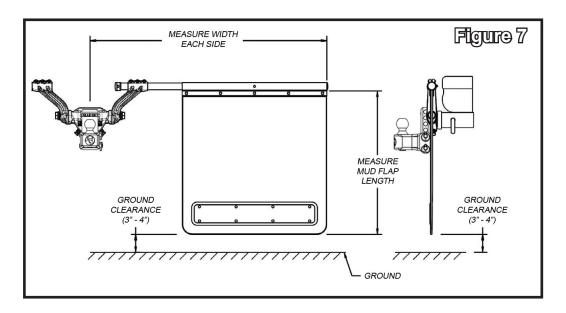


7. Slide FLAP CLAMPS over the FLAP SUPPORT RODS with square holes facing away from vehicle. Do not secure with FLAP RETAINER BOLTS yet. (See **Figure 6** for orientation of flap retainer bolt hole and flap support rod positioning holes.) (Note: MUD FLAP not yet attached.) **Figure 6.** 



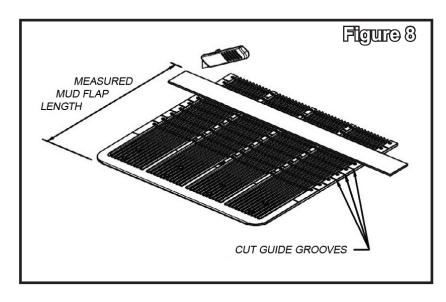
IMPORTANT: This next step is critical in ensuring that the MUDFLAP SYSTEM is properly installed. All measurements should be made while tow vehicle has full tongue weight.

8. Make sure SUPPORT RODS are level on both sides and measure the distance from the bottom of FLAP SUPPORT ROD to the ground. Subtract the desired **ground clearance** (3" - 4" recommended or 75 mm - 100 mm). Figure 7.



 Lay MUD FLAP down with grooved side up on flat surface. Measure desired MUD FLAP length from the bottom up. Find the nearest pre-molded CUT LINE GROOVE and mark.
 Figure 8.

IMPORTANT:
Before cutting and drilling/punching holes, make sure to place either a scrap piece of wood or thick cardboard underneath MUD FLAP to avoid any surface damage.

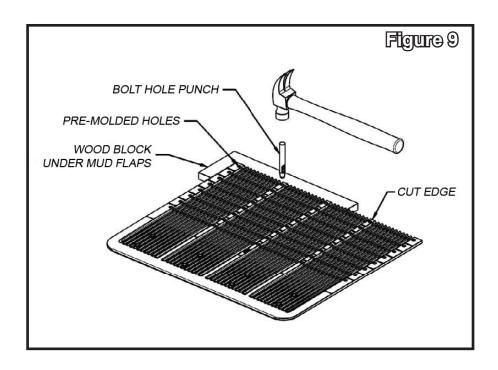


10. Use a sharp utility knife to cut through MUD FLAP using the groove and a straight edge as a guide. This may take several passes to completely cut through MUD FLAP. **Figure 8.** 

Repeat procedure for 2nd MUD FLAP.

IMPORTANT: Place a scrap piece of wood under the MUD FLAPS when punching or drilling holes, as the punch will dull and may damage the surface underneath.

11. Punch the top row of pre-molded holes in the MUD FLAP using the included BOLT HOLE PUNCH. **Figure 9.** 



12. Assemble cut end of MUD FLAP into FLAP CLAMP by either sliding or pushing it down onto top of MUD FLAP with the square holes on the smooth side.

Note: Should it be difficult to slide MUD FLAP into FLAP CLAMP, moisten the cut end of MUD FLAP surface before inserting.

Insert the five M8 FLAP CLAMP BOLTS through the square holes. Loosely attach the M8 FLAT WASHER and M8 NYLON INSERT HEX NUT to the back as shown. (Do not tighten yet.) **Figure 10.** 

Repeat for 2nd MUD FLAP.

13. Slide the FLAP CLAMP with attached MUD FLAP over the FLAP SUPPORT ROD with the NYLON INSERT HEX NUTS facing your vehicle.

Position the MUD FLAPS and FLAP SUPPORT RODS (left and right) as desired for your vehicle. Line up small hole in FLAP CLAMP with one of the three flap adjustment holes in SUPPORT ROD depending on vehicle size.

- Inner Hole for small and mid-sized vehicles
- Center Hole for full-sized vehicles
- Outer Hole for large vehicles, such as dually trucks and small motor homes.

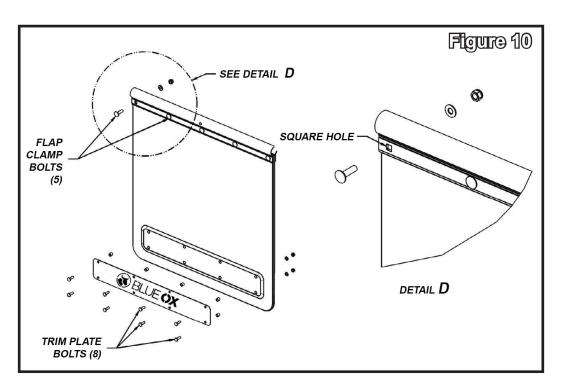
Finally, insert the small M5 FLAP RETAINER BOLT through FLAP CLAMP and SUPPORT ROD and attach the M5 NYLON INSERT HEX NUT. **Figures 1 & 6.** 

Repeat for 2nd MUD FLAP.

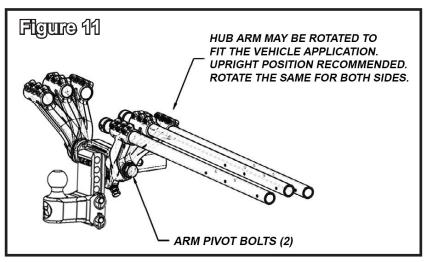
14. Assemble TRIM PLATES. Insert M6 TRIM PLATE SPACERS into holes in raised bottom portion of MUD FLAP. Attach the BLUE OX TRIM PLATE with the eight (8) M6 TRIM PLATE BOLTS (Locking STAR PIN™ [STAR PIN™ wrench included], M6 FLAT WASHERS, and M6 NYLON INSERT HEX NUTS as shown in **Figure 10**. (20 in-lbs torque [10 mm socket or wrench]).

Repeat for 2nd MUD FLAP.

Note: DO NOT over tighten, as it will damage the TRIM PLATE.

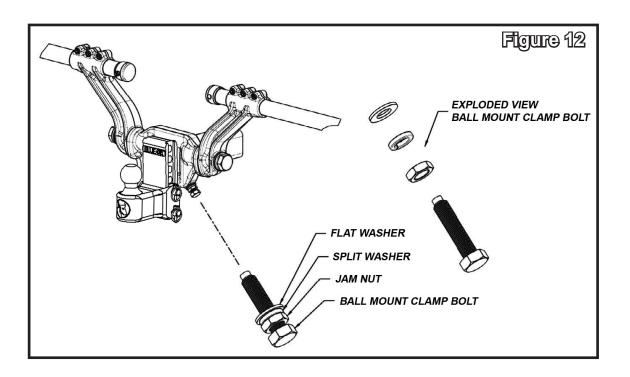


15. The ARMS of the HUB ASSEMBLY may be loosened and rotated to fit your vehicle application. The FLAP SUPPORT RODS must also be rotated slightly so the MUD FLAPS hang vertical. Figure 11.



- 16. Finalize all positioning and adjustments. For all conversions see Torque conversion table on page 2.
- 17. Make sure the M10 SPLIT WASHERS and M10 JAM NUTS remain loose on the M10 BALL MOUNT CLAMP BOLTS and finish tightening the M10 CLAMP BOLTS evenly onto BALL MOUNT. (120-180 in-lbs torque [17 mm socket or wrench]).

Once the M10 BALL MOUNT CLAMP BOLTS are tight, tighten the M10 WASHERS AND JAM NUTS securely. **Figure 12.** 



18. Tighten the large CENTER HUB M18 ARM PIVOT BOLTS. (1500 in-lbs torque [27 mm socket or wrench]). **Figure 1.** 

Note: Make sure the ARM PIVOT BOLTS and SUPPORT RODS have sufficient clearance away from the bumper so that they do not rub up against it.

19. Finalize width adjustment of FLAP SUPPORT RODS by sliding them in or out of the HUB ARMS. **Figure 5.** 

Note: It is recommended that final MUD FLAP position extends a minimum of 2" from outer edge of tire.

IMPORTANT: Evenly tighten the three M2 ARM CLAMP BOLTS beginning with the center bolt and moving from one to another on each side until all are tight.

The SLOT will NOT close. (70-80 in-lbs torque [5 mm ALLEN WRENCH]).

20. Tighten the five M8 FLAP CLAMP BOLTS on each of the FLAP CLAMPS. **Figure 10**. (30 in-lbs torque [13 mm socket or wrench])

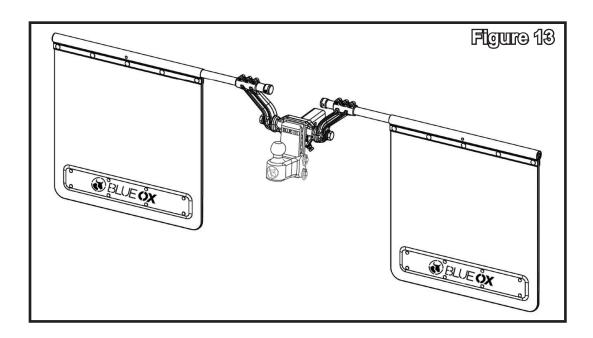
IMPORTANT: SUPPORT RODS <u>MUST NOT</u> BE ABLE TO ROTATE or MOVE IN HUB ARMS or FLAP CLAMPS

21. Tighten the M5 FLAP RETAINER BOLTS on each side. **Figure 6**.

IMPORTANT: FLAP RETAINER BOLTS are not intended to hold FLAP CLAMP on FLAP SUPPORT ROD. The RETAINER BOLTS must be used for proper positioning and safety.

22. Complete the assembly by inserting the FLAP END CAPS into the FLAP CLAMPS. Figure 1.

22. The Blue Ox Mud Flap System is now ready to use. As a final safely procedure, check bolts to see that they are tight and properly assembled. For optimum service and life, check components and the torque on all bolts prior to each use. **Figure 13.** 



> FORGED ALUMINUM HUB & ARMS

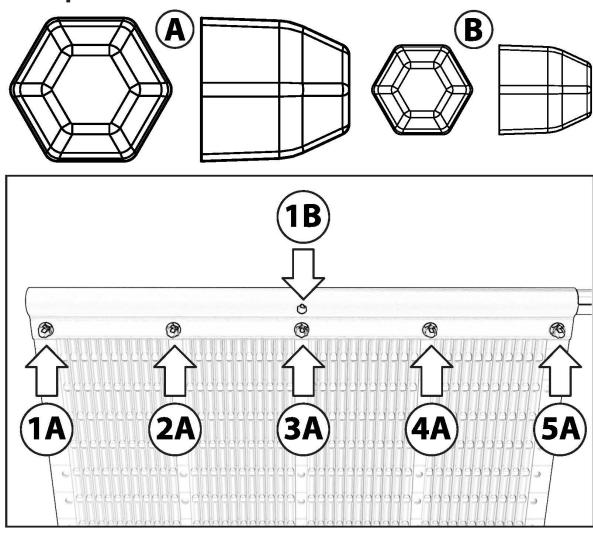
> STAINLESS SLEEVED STEEL RODS

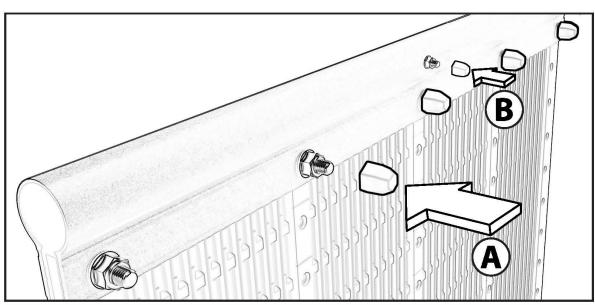
> UV PROTECTED MATTE BLACK FINISH

> STAINLESS, CHROME AND ZINC PLATED HARDWARE

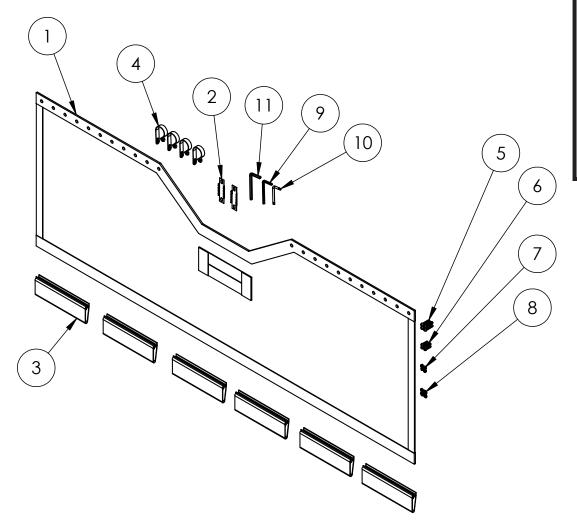


## **Bolt Bumpers**





#### **Rock Screen Parts: BX88430**



#### **Tools Required**

Saftey Glasses Gloves Flathead Screwdriver Awl or Similar Tool Awl or Similar Tool
Torque Wrench
Utility Knife
White Pencil or Chalk
8MM Socket
8MM Wrench
10MM Socket
10MM Wrench
13MM Socket 13MM Wrench

Item No.	Part No.	Description	Qt <u>y.</u>
1	290-0652	Rock Screen	1
2	100-1439	Black Steel Tension Clamp	2
3	290-0650	Black Plastic Extrusion	6
4	290-0651	Black Plastic Loop Clamp	4
5	201-1166	M6 x 30MM Hex Bolt, Stainless Steel	4
6	201-1167	M5 x 20MM Phillips Bolt, Stainless Steel	4
7	202-0261	M5 Steel Nylon Locking Nut	4
8	203-0208	M6 Washer, Stainless Steel	4
9	229-1235	5MM Allen Wrench	1
10	229-1237	6MM Tamper Resistant Torx Wrench	1
11	229-1242	6MM Allen Wrench	1

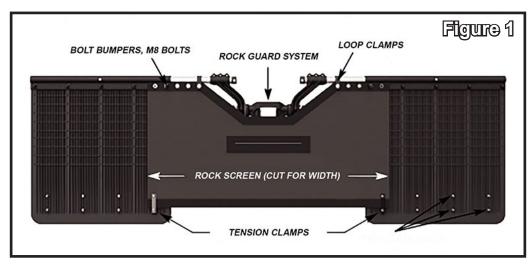
#### Important:

Use only genuine factory replacement parts on your baseplate. Do NOT substitute homemade or non-typical parts. If a bolt is lost or in need of replacement, for your safety and the preservation of your baseplate, be sure to use a replacement bolt of the same grade (In most cases it will be Grade 5, please reference the parts list above). Replacement parts may be ordered through Blue Ox®. Failing to follow and/or altering these installation instructions in either installation or required equipment will void the manufacturer's warranty. Towing behind a non-motorized vehicle will void the warranty.

#### **Rock Screen Installation Instructions:**

NOTE: BLUE OX ROCK SCREEN IS DESIGNED TO BE USED WITH THE BLUE OX MUD FLAP SYSTEM. FINALIZE WIDTH AND HEIGHT ADJUSTMENTS FOR THE BLUE OX MUD FLAP SYSTEM BEFORE INSTALLING THE BLUE OX ROCK SCREEN

- 1. Place the fully assembled Blue Ox Mud Flap System on a solid, flat surface, with the ridged back surface of the Mudflaps facing up.
- 2. Locate the desired placement by placing the Rock Screen on the Mud flap assembly, with the eyelets of the Rock Screen sitting directly over the M8 Flap Clamp Bolts, as shown in **Figure 1.**



3. Remove pertinent Bolt Bumpers from the M8 Flap Clamp Bolts using a flat head screwdriver, if in use.

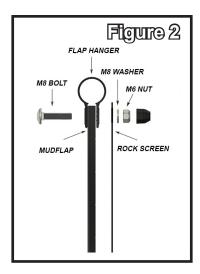
**NOTE**: The Bolt Bumpers should never be used on a vehicle with rear-facing exhaust

 Remove the M8 Nylon Insert Hex Nuts and M8 Flat Washers from the Blue Ox Mud Flap System using a 13mm wrench or socket

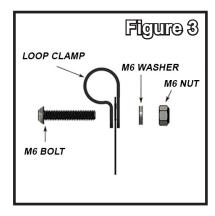
**NOTE**: The width of the Blue Ox Rock Screen can be adjusted if desired by cutting the Rock Screen, it is not necessary to use all eyelets

5. Line up the Rock Screen with the Blue Ox Mud Flap System by aligning the eyelets on the Rock Screen with the M8 Bolts as shown in **Figure 1**. (**NOTE**: the overall width of the Blue Ox Mud Flap System might need to be adjusted slightly to ensure a perfect fit for the Blue Ox Rock Screen)

6. Affix the Rock Screen to the Blue Ox Mud Flap System by 1st placing the Rock Screen over the M8 Bolts and then placing the M8 Flat Washers over the Rock Screen. Secure the assembly using the M8 Nylon Insert Hex Nuts, as shown in **Figure 2**. Repeat this step for remaining Flap Hanger Bolts.

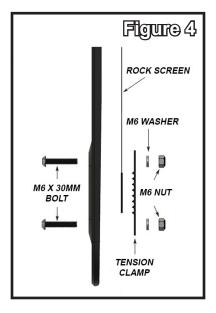


- 7. Replace the Bolt Bumpers, if in use.
- 8. If additional support for the Rock Screen is needed, assemble the Loop Clamps onto the Flap Support Rods as shown in **Figure 3**. The Rock Screen should go into the Loop Clamp. M5 nuts and bolts are provided for use with the Loop Clamps

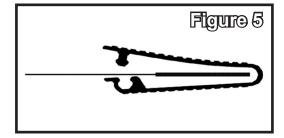


- 9. Determine the desired height of the Blue Ox Rock Screen. If the Mud flaps are full height, proceed to Step 12.
- 10. If the Mud flaps were adjusted for height, the Blue Ox Rock Screen must be adjusted to fit. Carefully roll up the Rock Screen from the bottom, folding over the nylon webbing. Repeat as necessary until the rolled-up Rock Screen is located between the Blue Ox Trim Plate Bolts, as shown in **Figure 1**.

- 11. Locate the desired locations for the Tension Clamps. The Tension Clamps will affix to the inner-most Trim Plate Bolts. Place the Tension Clamps in the desired locations and mark the locations of the upper Tension Clamp holes on the Rock Screen using a white pencil or chalk
- 12. Remove the pertinent M6 Nylon Insert Hex Nuts, M6 Flat Washer and M6 Trim Plate Bolts, as shown in **Figure 4**.



- 13. Using an awl or another sharp tool, carefully make holes in the Rock Screen large enough for an M6 bolt to fit through.
- 14. Assemble the Tension Clamps onto the Blue Ox Rock Screen and Mud Flap assembly as shown in **Figure 5**, using the included M6 x 30mm bolts.



- 15. Fully tighten all nuts. (30 in-lbs for the M8 nuts, 20 in-lbs for M6 nuts)
- 16. Finalize width of Blue Ox Mud Flap assembly by loosening the M6 Arm Clamp Bolts, adjusting the Flap Support Rods and finally tightening the M6 Arm Clamp Bolts to 70-80 in-lbs. For optimal performance and durability, the Blue Ox Rock Screen should be taut.

- 17. Assemble the black plastic Extrusions onto the bottom of the Blue Ox Rock Screen if desired, as shown in **Figure 5**. Snap the Extrusions over the Rock Screen by pressing firmly to secure.
- 18. The Blue Ox Mud Flap and Rock Screen system is now ready to use. For optimum service and life, check components and the torque on all bolts prior to each use.

## **Mud Flap System Accessory Kits**

BX88429	Kit, Mud Flap Exhaust Outlet 2 Pack
BX88430	Kit, Mud Flap Rock Screen
BX88431	Kit, Mud Flap Heat Shield
BX88435	Kit, Mud Flap 3" Center Hub
BX88436	Kit, Mud Flap Wall Mount
BX88437	Kit, Mud Flap Trim Plates

#### **CUSTOMER SERVICE COMMITMENT**

Blue Ox® is committed to providing you with exceptional customer care throughout your lifetime with our products. Our team is here to assist you with any questions you may have regarding the performance of your product. Simply call (402) 385-3051 and you can speak with our technical service team.

Additionally, please visit our website to see which rallies our team will be attending. For a nominal fee, our service technician will service your towing system to ensure it's in proper working condition. Also, as a commitment to our customers, should you visit our factory, you can stay at our full service Blue Ox® campground at no charge along with enjoying a factory tour.

Again, thank you for being our customer and for the confidence you have shown in the performance of our products. It is because of customers like you we enjoy the success we have today.

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#### LIMITED WARRANTY

Automatic Equipment Manufacturing Company ("Automatic") warrants this product to be free of defects in material and workmanship under normal use and service for the period of one (1) year from the original consumer date of purchase. Automatic limits its obligation to Repairing or replacing any part that proves defective in material or workmanship. A valid Return Merchandise Authorization on (or RMA number) must be obtained from Automatic. Without this authorization on number, no returns will be accepted and no credit can be issued. Any freight collect shipments will be refused. Automatic will pay return ground transportation on charges only if the product is covered under this warranty. All returns must be shipped with TRANSPORTATION CHARGED PREPAID, to the address below, with a valid RMA number written clearly on the outside of the box:

Blue Ox One Mill Road Pender, NE 68716 USA

Attn: RMA

This warranty does not extend to any product or part that is not installed and used in accordance with Automatic printed instructions, all applicable state and local regulations, and all applicable national standards and regulations, if any should apply. This warranty does not extend to any product or part that has been damaged by accident, misuse, abuse, or neglect, nor does it extend to any product or part that has been modified, altered, or repaired by the consumer. Except as expressly set forth above, and subject to, the limitation of liability below, Automatic makes NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, with respect to its products and parts, whether used alone or in combination with others. Automatic disclaims all warranties not stated herein.

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All Automatic products are mechanical devices that will eventually show signs of wear, damage, corrosion, and aging of components made of materials such as rubber, etc. The environment and conditions of use will determine the safe service life of these products. Periodic inspection and maintenance are essential to retaining maximum efficiency of the product's shielding properties. Because of a policy of continuous product improvement, Automatic reserves the right to change designs, materials, or specifications without notice.

Please visit <a href="http://blueox.com/warranty/">http://blueox.com/warranty/</a> to register your warranty