



AEV Rear Bumper

Super Duty MY23+

NEW PRODUCT

Please visit www.aev-conversions.com to view the most current installation guide for this product.

This is a new product and we want to make sure that you receive the latest and most accurate information based on customer feedback, product revisions, and/or model year updates. We value customer feedback, so we encourage you to contact our Technical Support department if you have any suggestions on how to make the installation of this product easier or if you have any questions regarding the installation of this product. AEV's Technical Support can be reached by email at tech@aev-conversions.com or by giving us a call at (248)-926-0256.



PLEASE READ BEFORE YOU START

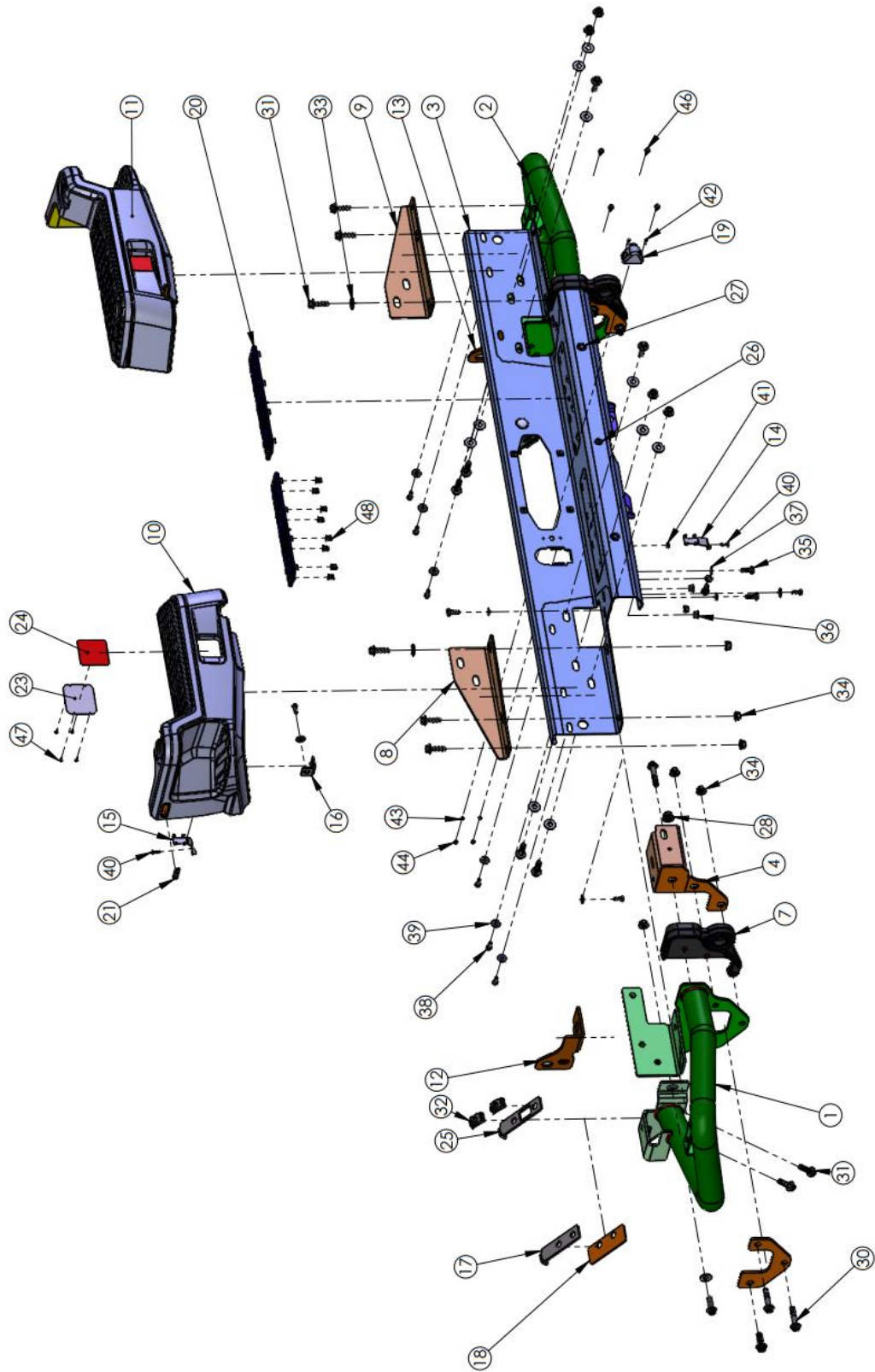
To guarantee a quality installation, we recommend reading these instructions thoroughly before beginning any work. These instructions assume a certain amount of mechanical ability and are not written nor intended for someone not familiar with auto repair.

INCLUDED PARTS	QTY	REQUIRED TOOLS
Center Weldment	1	½" Drill Bit
LH Corner Kit	1	13/32" Drill Bit
RH Corner Kit	1	Step Drill Bit
Mounting Kit	1	1 ¼" Hole Saw
Rear Tow Hook Kit	1	Common Hand Tools
		Torque Wrench
		Anti-Seize



AMERICAN EXPEDITION VEHICLES

ITEM NO.	PARTNO	DESCRIPTION	QTY.	ITEM NO.	PARTNO	DESCRIPTION	QTY.
1	FD580201AC	WELDMT, FORD SD REAR BMPR, CORNER LH	1	28	AEV98003AA	NUT, LFLNG, M14-2.0 - 10 - GMW16730 - BLACK	2
2	FD580200AC	WELDMT, FORD SD REAR BMPR, CORNER RH	1	29	AEV98005AA	BOLT, HFLNG, M14-2X40 - 10.9 - GMW16730 - BLACK	2
3	FD580202AB	WELDMT, FORD SD REAR BMPR, CENTER	1	30	AEV98009AA	BOLT, HFLNG, M12-1.75X60 - 10.9 - GMW16730 - BLACK	6
4	FD580205AB	WELDMT, FORD SD REAR BMPR, ADJUSTMENT ASM LH	1	31	AEV91242AA	BOLT, HFLNG, M12-1.75X40 - 10.9 - GMW16730 - BLACK	18
5	FD580204AB	WELDMT, FORD SD REAR BMPR, ADJUSTMENT ASM RH	1	32	NA5012-01	M12 X 1.75 U-NUT (1.5-5 PNL THICKNESS)	4
6	FD582017AB	PLATE, FORD SD REAR BMPR, DOUBLER PLATE	2	33	AEV98067AA	WASHER, OVERSIZED, M12 30mm OD - GMW16730 - BLACK	14
7	FD582000AA	TOW HOOK CASTING, FORD SD REAR BMPR	2	34	AEV98022AA	NUT, LFLNG, M12-1.75 - 10 - GMW16730 - BLACK	16
8	FD582019AA	BRACKET, FORD SD REAR BMPR, CORNER BRACE LH	1	35	AEV91145AA	BOLT, HCS, M10-1.5X25 - 10.9 - PS11036-BLACK	8
9	FD582018AA	BRACKET, FORD SD REAR BMPR, CORNER BRACE RH	1	36	AEV93054AA	NUT, LFLNG, M10-1.5 - GMW16730 - BLACK	6
10	FD582021AA	TANK, FORD SD REAR BMPR, CORNER LH	1	37	AEV98006AA	WASHER, M10 - PS5873-BLACK	8
11	FD582020AA	TANK, FORD SD REAR BMPR, CORNER RH	1	38	AEV91171AA	BOLT, HCS, M8-1.25X20 STAINLESS	12
12	FD582023AA	BRACKET, FORD SD REAR BMPR, HITCH BRACE LH	1	39	AEV98068AA	WASHER, OVERSIZED, M8 24mm OD - GMW16730 - BLACK	12
13	FD582022AA	BRACKET, FORD SD REAR BMPR, HITCH BRACE RH	1	40	AEV91055AA	BOLT, BFLNG, M6-1.0X20 - 10.9 - PS5873-BLACK	4
14	ARMB3049AA	BRACKET, RAM REAR BUMPER, PARK SENSOR INR	2	41	AEV93027AA	NUT, FLNG, M6-1.0 - PS11036-BLACK	2
15	FD582024AA	BRACKET, FORD SD REAR BMPR, TANK PARK SENSOR	2	42	AEV91152AA	BOLT, SHCS, #8-32 X 3/4" - S.S.	2
16	FD580203AA	WELDMT, FORD SD REAR BMPR, TANK ADJUSTMENT BRKT	2	43	8NWSFS	WASHER, #8 - S.S.	2
17	FD582033AA	PLATE, FORD SD REAR BMPR, F250 NUT PLATE	2	44	8CNNS	NUT, LN, #8-32	2
18	FD582034AA	PLATE, FORD SD REAR BMPR, F250 SPACER	2	45	AEV92003AA	NUT, #14 - P, LICENSE PLATE	4
19	LPL12CKM2B	LIGHT, OPTRONICS, LED LICENSE PLATE	1	46	AEV91217AA	#14 X 3/4 HEX HEAD CAP SCREW, LICENSE PLATE SCREW - BLACK PS10036B	4
20	ACP81000AA	MOLDED STEP PAD 2.75" X 12.75"	2	47	90221A412	PUSH-IN RIVET NYLON RIBBED SHANK	8
21	60406135AA	BADGE, RR BUMPER TANKS (NO STUDS)	2	48	11570751	11570751_003_CLIP_718	16
22	P-85985K41	MCMaster 85985K41 1.125 PLASTIC PLUG	1				
23	ARMB3034AA	PLATE, RAM REAR BUMPER, TANK CLOSEOUT	2				
24	ARMB3035AA	REFLECTIVE TAPE - ORALITE V98 (RED)	2				
25	FD582032AA	PLATE, FORD SD REAR BMPR, F350 NUT PLATE	2				
26	P-85985K73	DOME PLUG, 5/8" DIA HOLE, BLACK NYLON (PNL THK .016"- .125")	1				
27	P-85985K21	DOME PLUG, 3/4" DIA HOLE, BLACK NYLON (PNL THK .016"- .125")	2				





I. VEHICLE PREPARATION

1. Remove OE rear bumper:

- A. Remove the M10 and M12 nuts and hex bolts on the LH and RH pencil braces saving the OE bolt plates and nuts (Fig. 1).



Figure 1

- B. Remove the two black M10 Hex self-threading bolts from underneath the license plate (Fig. 2).



Figure 2



- C. The bumper should now be able to tilt back. Make sure you have a pair of helping hands preventing the bumper from falling. Disconnect the two wire connectors. One for the trailer plug and one for the RPA's & lights. The OE bumper is now cleared to take off.
- D. Remove the three bolts on the OE hitch mount brackets, both LH and RH. Save the OE bolt plates and nuts for installation of the AEV rear bumper (Fig. 3).



Figure 3

- E. Lay the bumper on a flat surface with the back side of the bumper facing up. Remove the trailer plug from the OE bumper. This trailer plug has two retaining clips on the back side. Push in the retaining clips by hand or with an adjustable wrench and the trailer plug will slide out (Fig. 4).



Figure 4



- F. IF your vehicle has rear parking sensors, remove the (4) RPA's from the OE bumper. Pull the white retaining clip up and pinch towards the top of the clip to remove the connectors. Flatten / pull away the plastic retaining clips of the sensor casing and the sensors should slide out. Do not worry about destroying these retaining casings as they do not carry over to the AEV bumper installation (Fig. 5 & 6).



Figure 5



Figure 6

2. Install the AEV Bumper Corner Weldments:

- A. Starting with the FD5B0201AC LH Corner Weldment, slide the square opening of the Corner Weldment over the square tube of the OE hitch. Make sure the forward hitch mounting locations are aligned and install one AEV91242AA M12 Bolt, AEV98067AA Washer, and AEV98022AA Nut on the front hitch mounting point to hold the corner in place (Fig.7 & 8).



Figure 7



Figure 8

B. Install the FD5B2023AA LH rear hitch mount on top of the Corner Weldment and frame rail using the hardware you saved earlier from the OE bumper. Fasten the bolts to (400 n/m) – (cannot fit a larger torque wrench between the hitch and bed) (Fig. 9 & 10).

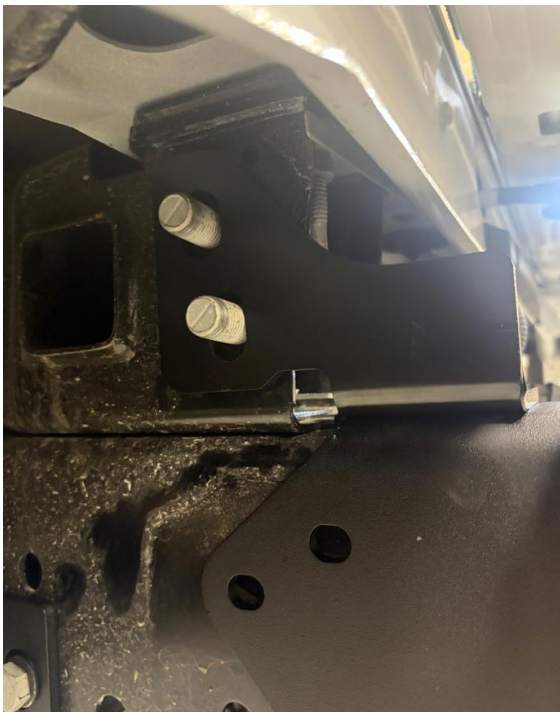


Figure 9



Figure 10



C. Depending on your vehicle, install the two NA5012-01 U-Nuts onto either the FD5B2032AA F350 Nut Plate or FD5B2033AB F250 Nut Plate. (**NOTE:** IF you have an F250 with the heavy-duty tow package you will need to use the FD5B2032AA F350 Nut Plate due to the material thickness of the hitch and attachment point locations). Make sure the nuts are facing the opposite direction of the bent tab on the plate (Fig. 11).



Figure 11

D. Slide the Nut Plate in the top of the frame channel until the attachment holes line up. Install your AEV91242AA M12 Bolts and AEV98067AA Washers (Fig. 12). **NOTE:** IF you have an F250 WITHOUT the heavy-duty tow package you will need to install the FD5B2034AA F250 Spacer between the bottom of the frame and top of the corner weldment before installing the hardware. This is needed to account for the delta in hitch material thickness.



Figure 12

E. The RH corner will require one attachment point to be drilled out due to the label location on the frame. Place the FD5B0200AC RH Corner Weldment on the vehicle, make sure to align the forward hitch mount locations and mark the hole with a sharpie (Fig. 13). Drill out the attachment point using a $\frac{1}{2}$ " drill bit, make sure to pilot the hole with a smaller drill bit. Deburr and coat the hole with anti-rust treatment. Once the rust treatment is dried, top it off with black automotive paint.



Figure 13



F. Repeat steps A-D for the FD5B0200AC RH Corner Weldment. – (Step B: FD5B2022AA RH Hitch Brace Bracket)

3. Install the AEV Rear Tow Hook interface:

A. Starting with the LH side, install the FD5B2000AA Tow Hook on the RH side of the LH Corner Weldment (Fig.14).



Figure 14

B. Use the AEV98005AA M14 Flange Bolt and AEV98003AA Nut on the forward / inboard most attachment point of the assembly. The remaining two attachment points will use the AEV98009AA M12 Flange Bolt, and AEV98022AA Nut. Do not fully torque the hardware, you will only want hand tighten the M14 and M12 nuts as these will be removed when it comes time to install the Center Weldment.

C. Mirror steps A & B on the RH side.

4. Prep the FD5B0202AB Center Weldment:



- A. IF your vehicle has rear parking sensors follow the directions on the Rear Bumper Harness I-Sheet before continuing. Once completed, resume to step B below.
- B. Install the LPL12CKM2B License Plate Light on the Center Weldment. Feed the wiring through the passthrough hole in between the two attachment points before installing the hardware. Make sure to install the light facing the plate. Use antiseize on the AEV91152AA stainless-steel bolts. Place the 8NWSFS stainless-steel washer and 8CNNES nut on the back side of the Center Weldment (Fig. 15 & 16).



Figure 15



Figure 16

- C. Loosely install the FD5B0205AB LH and FD5B0204AB RH Adjustment Weldments onto the Center Weldment with two AEV91145AA M10 Button Head Bolts, AEV98006AA Washers, and AEV91246AA nuts per side (locations on Fig. 18). Fasten the bolts until you have just enough clearance to allow the weldment to slide cross-car in the slotted holes. You will want the LH & RH Adjustable Weldments to be flush with the ends of the center weldment before fitting up to the vehicle (Fig. 17 & 18).



Figure 17

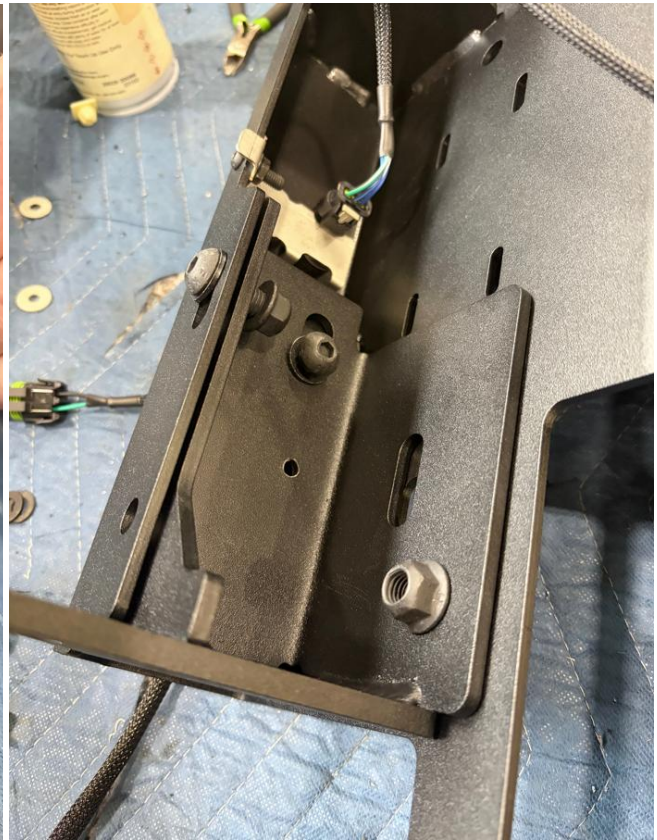


Figure 18

5. Install the FD5B0202AB Center Weldment:

- A. Take the Center Weldment that you built up and fit it up to the vehicle. Make sure to have an extra set of hands to help hold in place.
- B. Install the FD5B2017AB Doubler Plate on the outboard sides of the LH & RH Rear Corner Weldments.
- C. Install the AEV98009AA M12 Flange Bolts and AEV98022AA Nuts to sandwich the Doubler Plate, Corner Weldment, Tow Hook, and Adjustment Weldment interface to the vehicle on both LH & RH sides. Do not fully torque to allow for later adjustments (Fig. 19). Use a 4" extension to fasten the AEV98009AA M12 Flange Bolts in the inner attachment points of the Adjustment Weldments tying into the corner tubes (Fig. 20 – reference picture of bolt location without the center weldment installed for visibility).



Figure 19

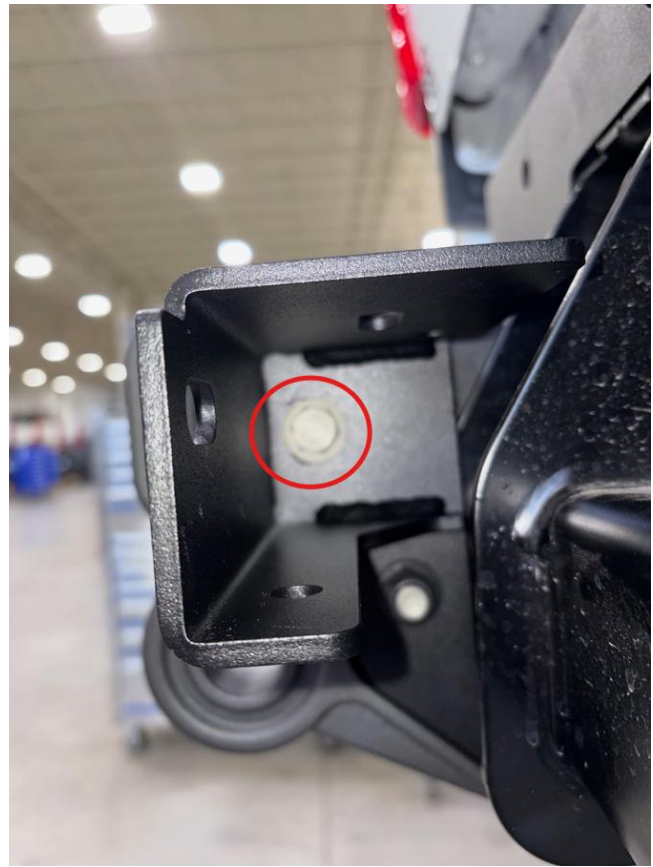


Figure 20

D. Fasten four AEV91242AA M12 Bolts and AEV98067AA Washers to hold the bumper into place, reference locations (Fig. 21) – mirror to LH side. Fastening these four bolts should allow you to adjust the Center Weldment until all bolt locations align.



Figure 21

E. Install the FD5B2018AA & FD5B2019AA Corner Brace Brackets on the LH and RH sides of the center weldment (Fig. 22). You will have to uninstall the two M12 Bolts and Washers installed on the Center Weldment from step C as we will be using this hole location. It is best practice to install the outboard most and inboard most bolts first for proper alignment. (**NOTE:** IF you are installing the 3" baja lights please refer to the Rear Light Mount I-sheet for the light mount installation before proceeding).



Figure 22



F. Reinstall the OE pencil braces that were removed during step 1. Use the OE M10 bolt plates and M10 nuts saved from earlier, torque the M10 nuts to 58 n/m. Install the AEV91242AA M12 Bolts and AEV98067AA Washers from the back side of the Center Weldment, install the AEV98022AA M12 Nut on the front side of the Center Weldment (Fig. 23).

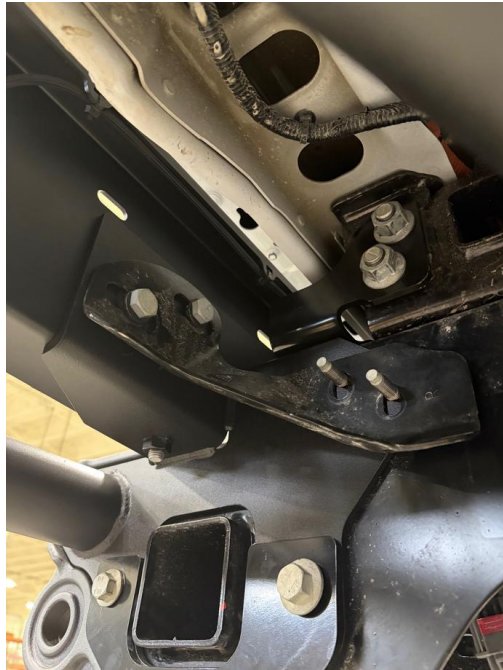


Figure 23

G. Install the OE self-threading M10 bolt and washer to the bottom attachment points near the receiver. You do not want to over-tighten these bolts as it is easy to strip the threads (Fig. 24).



Figure 24



- H. Make sure all hardware is torqued before moving to the next step. AEV91242AA & AEV98009AA M12 Hex Flange Bolts = 100 N/M, AEV91149 Button Head M10 = 58 N/M, AEV98005AA M14 Hex Flange Bolt = Mark the hardware with a paint pen after torquing.
- I. Drill out the M10 shear bolt attachment points on the LH & RH Adjustable Weldment and Center Weldment interfaces with a 13/32" drill bit. Start by punching the center of the hole and pilot drill with a smaller drill bit (Fig. 25). Make sure to treat these two hole locations with anti-rust treatment. Once this dries, top it off with black automotive paint.



Figure 25

- J. Install the AEV91145AA M10 button head bolts, AEV98006AA Washers, and AEV91246AA Nuts on the two locations you drilled out. Torque to 58 n/m.
- K. If you are installing the rear 3" Baja lights, refer to the rear light kit I-sheet before proceeding.
- 6. Install the LH & RH Corner Tanks:**
- A. IF your vehicle has rear parking sensors you will need to prep the tanks prior to installation. IF your vehicle does not have rear parking sensors you can skip steps B-D.
- B. Lay the corner tanks flat on a surface with the back side of the tanks facing up. Use a 1 3/4" hole saw to drill out the brackets mating surface on the marked locations. Be extremely careful during this process you do NOT want to drill all the way through. Since these tanks are rotary molded there is a



thin gap between the front and back walls. Drill very slowly until you feel you have cut through the first wall. The pilot of the hole saw will drill through the front wall marking your drill location for the rear parking sensors.

- C. Use a step drill bit to drill out the parking sensor location, drill to 13/16" for the correct sizing. Make sure to drill from the front side of the tank and be extra careful during this process making sure not to scuff up your tank.
- D. Mount the tank parking sensor bracket to the corner tank with the parking sensor sandwiched between. Make sure the connector is facing inboard before fastening the bracket. The sensor and bracket may require small adjustments after the install is completed due to the amount of pressure the sensor is seeing. IF your RPA alert is solid red when you reverse this is because there is too much pressure holding the sensor in place.
- E. Mount the FD5B0203 Tank Adjustment Weldments to the outside attachment points on the tanks. We recommend installing these brackets in the fully drooped position to help alignment. Fit up the tank to the vehicle to see how the tank aligns. If you do not like the alignment, take the tank off and adjust the FD5B0203 brackets until satisfied
- F. Install the tanks onto the vehicle with your provided Tank Hardware Pack.

7. Start installing the accessories.

- A. Start by building up your molded step pads. Push in the base clips on all 8 locations on each step pad.
- B. Snap the step pads into the center weldment. There is no wrong orientation.
- C. Take your 4 license plate nuts and push snap them into their locations around the plate opening. Install your license plate with the provided license plate screws.
- D. Install the OE trailer hitch plug by snapping it into its location on the center weldment
- E. Install the dome plug in the spare tire access hole.
- F. Install the camera relocation cap.
- G. IF you do not have rear parking sensors on your vehicle, install the rear parking sensor caps in the center weldment holes.
- H. Install the AEV badging on the corner tanks.