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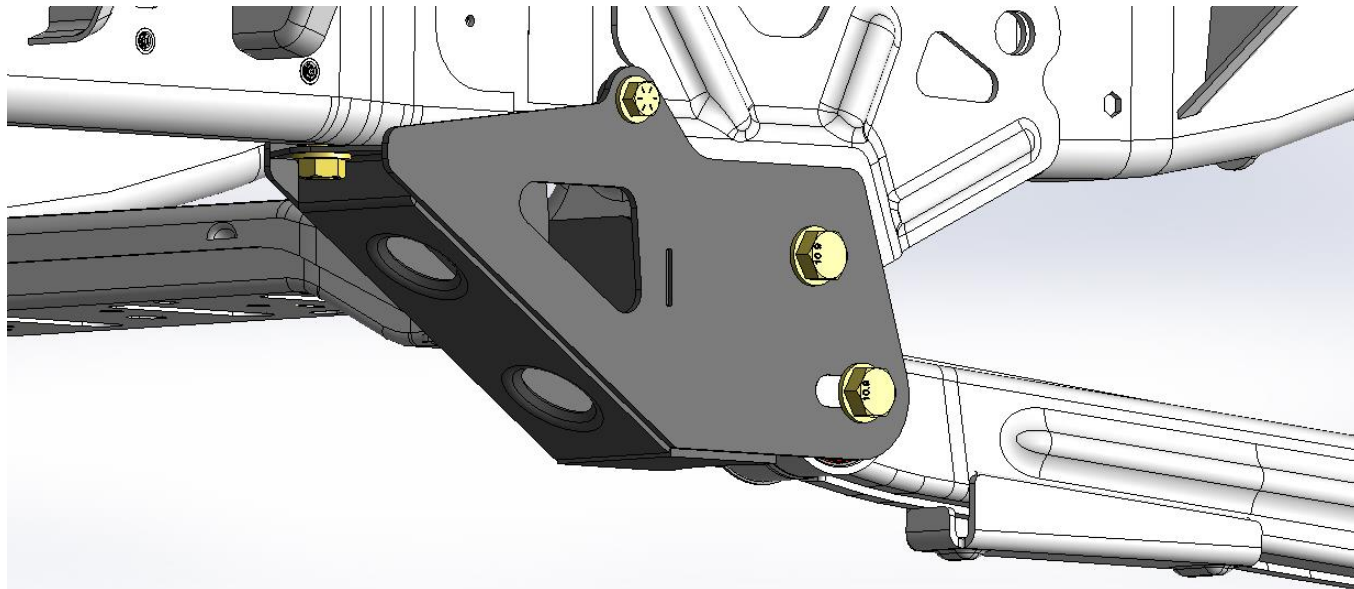
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A	Initial Release Per ECO 18-022	2/28/18	KB
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RAM FRONT RADIUS ARM DROP BRACKETS

Installation Instructions

Applications:
2014+ RAM 2500
2013+ RAM 3500



TITLE:
RAM RADIUS ARM DROP BRACKETS

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	SCALE: N/A	PAGE 1 OF 12



RAM RADIUS ARM DROP BRACKETS INSTALLATION INSTRUCTIONS

Thank you for purchasing the best aftermarket products available for your vehicle. We strongly feel that the parts you are about to install should meet or exceed your expectations for performance. Proper assembly is critical to the performance of these components and the vehicle as a whole. Please take the time to carefully read these instructions and familiarize yourself with the installation procedure before working on your vehicle. If you have any questions PLEASE contact Synergy Manufacturing BEFORE beginning installation. Thanks again for supporting Synergy – enjoy the performance benefits of the best aftermarket products available for your vehicle!

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Modifying or otherwise altering vehicle components may cause the vehicle to handle differently than originally designed. It is the driver's responsibility to familiarize themselves with the performance and handling characteristics of the modified vehicle. Vehicles with larger diameter than stock tires must be driven carefully and cannot be expected to perform as stock or meet OEM performance with regard to handling, braking or crash performance. Ensure all replacement components are compatible with vehicle capacities so as not to overload components, especially tires. It is up to the individual to ensure that the vehicle and all components are compatible with the intended vehicle use, including load ratings, road conditions, and driver abilities. Thorough and frequent vehicle inspections are recommended to ensure a safe and reliable state of readiness, especially after off-highway use.

PARTS LIST

8730-03 RADIUS ARM DROP BRACKETS		
QTY	Part Number	Description
1	873003-R	RIGHT HAND DROP BRACKET
1	873003-L	LEFT HAND DROP BRACKET
2	873003-07	OEM LOCATION SPACER TUBE
4	873003-11	TRANSMISSION BRACKET SPACERS
4	873003-21	1 INCH OFFSET RADIUS ARM SPACER
2	-	HEX HEAD GRADE 8 BOLT, 1/2-13 UNC X 4.5 INCH LONG
3	-	HEX HEAD GRADE 8 BOLT, 5/8-11 UNC X 9 INCH LONG
4	-	HEX HEAD GRADE 10.9 BOLT, M18-2.5 X 130MM
2	-	TOP LOCK NUT, 1/2-13 UNC
3	-	TOP LOCK NUT, 5/8-11 UNC
4	-	TOP LOCK NUT, M18-2.5
4	-	GRADE 8 FLAT WASHERS, 1/2 INCH
6	-	GRADE 8 FLAT WASHERS, 5/8 INCH
8	-	GRADE 8.8 FLAT WASHERS, 18MM



GENERAL NOTES

- These instructions are also available on our website; www.synergymfg.com. Check the website before you begin for any updated instructions and additional photos for your reference.
- If using these radius arm drop brackets in conjunction with a 3” or lower lift, usually no alignment is necessary. If using them with taller than a 3” lift then the truck should be aligned to check caster.
- If using these drop brackets on a truck equipped with a factory air ride suspension it will be necessary to remove the air tank for installation, and you will need to space the factory air tank out 1/4-3/8” from the frame rail in order to clear the upper horizontal bolt going through the frame rail.
- This kit moves the front axle forward into one of two positions: 1/2” forward of stock and 1 1/2” forward of stock. If you’re going to run 37 inch tall tires or smaller, run the offset spacer in the 1/2” forward position. If you are running tires larger than 37 inches, then run the offset spacer in the 1 1/2” forward position. Moving the axle forward allows larger tires on higher offset wheels to clear the firewall.
- If you move the axle to the 1 1/2” forward position you will need to run a driveshaft spacer, part number 8731, to keep the front driveshaft slip joint from coming apart, or have a longer driveshaft made. You will also need to cut the stock front bumper to clear the tires, or run an aftermarket front bumper.

KIT SPACER POSITION	INTENDED TIRE SIZE	ADDITIONAL PARTS REQUIRED	ADDITIONAL STEPS REQUIRED
1/2 INCH FORWARD	37 INCH OR SMALLER	NONE	NONE
1 1/2 INCH FORWARD	LARGER THAN 37 INCHES	YES, SYNERGY PN-8731 SYNERGY PN-8733	TRIM BUMPER TO CLEAR TIRES



TOOLS REQUIRED

- DRILL (RIGHT ANGLE DRILL IS BEST)
- ½" DRILL BIT
- BASIC HAND TOOLS, SOCKETS WRENCHES
- 27MM SOCKET AND COMBINATION WRENCH
- 18-24 INCH PRY BAR
- RATCHET STRAP
- FLOOR JACK OR VEHICLE LIFT
- JACK STANDS
- TORQUE WRENCH
- ANGLE GRINDER WITH CUTOFF WHEEL FOR 2019 AND NEWER TRUCKS
- SILICONE SEALANT (OPTIONAL)

ESTIMATED INSTALLATION TIME

3 Hours

INSTALLATION

1. Raise and support the front of the truck to get the weight off the coil springs. You do not need to remove the shocks, coils, or tires. Put wheel chocks in front and behind both front tires.
2. On the passenger side there is a wiring harness that is held close to the transmission cross member mounting bolts. Pull out the one plastic mount closest to the frame rail and push the harness up out of the way for now. See **Figure 1**.

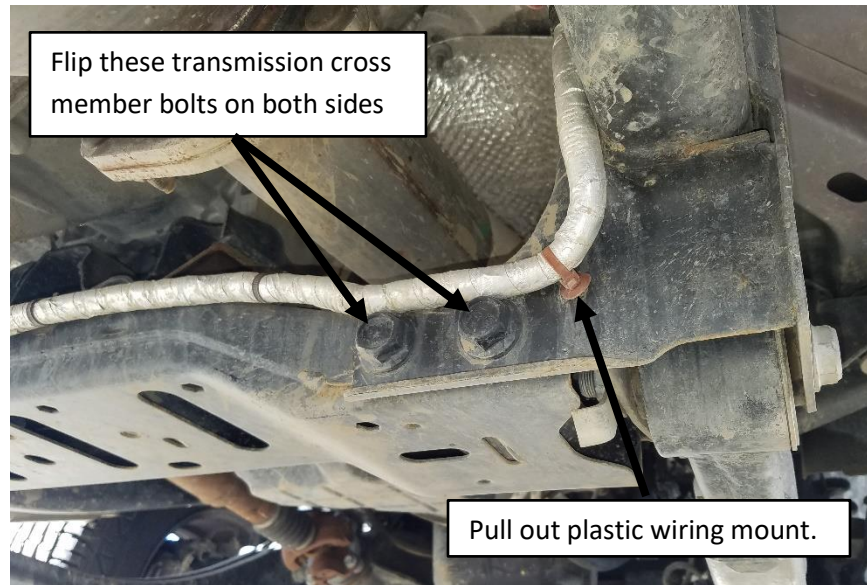


Figure 1. Transmission Cross Member

3. One at a time, pull the four large 18mm bolts holding the transmission cross member in place and flip them around to the other side. On 2019 and newer trucks the inner bolt on the passenger side will run into the DPF and the bolt head will need to be cut off and the remainder of the bolt pulled out forward. Replace the cut bolt with a 5/8"x9" long bolt from the hardware kit with washers and lock nut. Bolt heads should be towards the front of the truck when done. Only install them halfway for now. See **Figure 2**.



Figure 2. Transmission Cross Member Bolts Reversed

- Loosen and remove both radius arm bolts and let the arms hang down. If you can't get the arms to hang down low enough, you can loosen the lower bolts holding the radius arms to the axle housing and remove the upper bolts for now. See **Figure 3**.



Figure 3. Radius Arms Separated from Frame

- Test fit both brackets in place. Use one of the supplied 18mm bolts and washers through the bracket and factory radius arm holes in the frame to loosely hold the bracket on. Use one of the supplied 5/8 inch long bolts and 5/8 inch washer up through the end of the bracket and hole in frame. Put a 5/8 inch nut and washer at the top of the frame. See **Figure 4**.

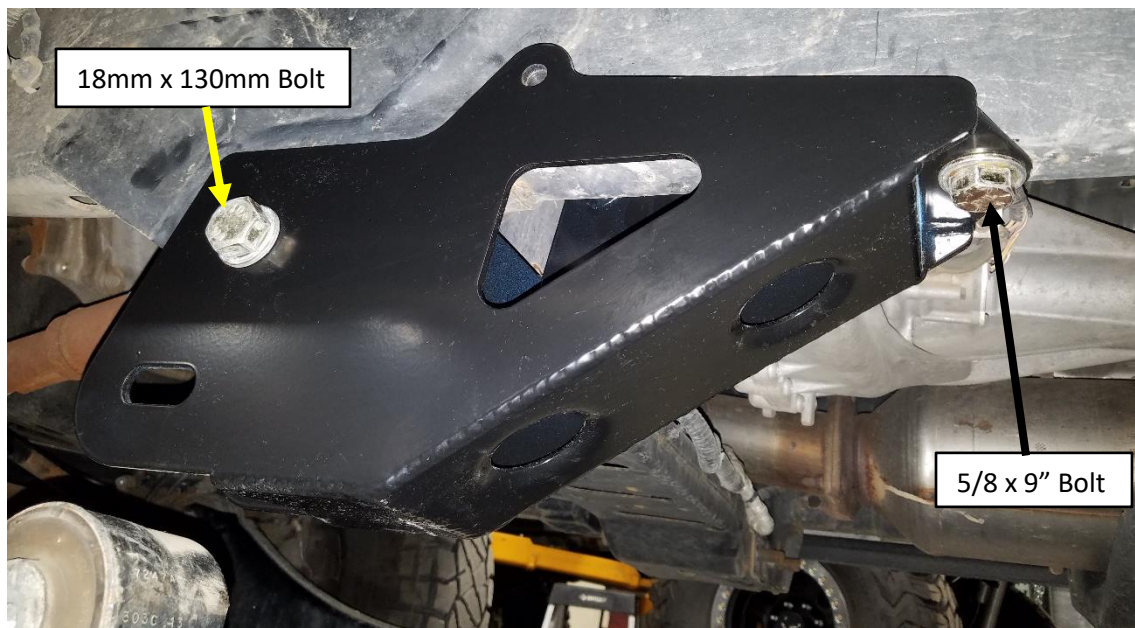


Figure 4. Synergy Radius Arm Drop Bracket Initial Install

- Slip the Trans Bracket Spacers in between the drop bracket and transmission cross member mounts and slide the bolts all the way through and use the factory nuts. For 2019 and newer trucks, one of the bolts will be the new 5/8" x 9" long bolt. See **Figure 5**.

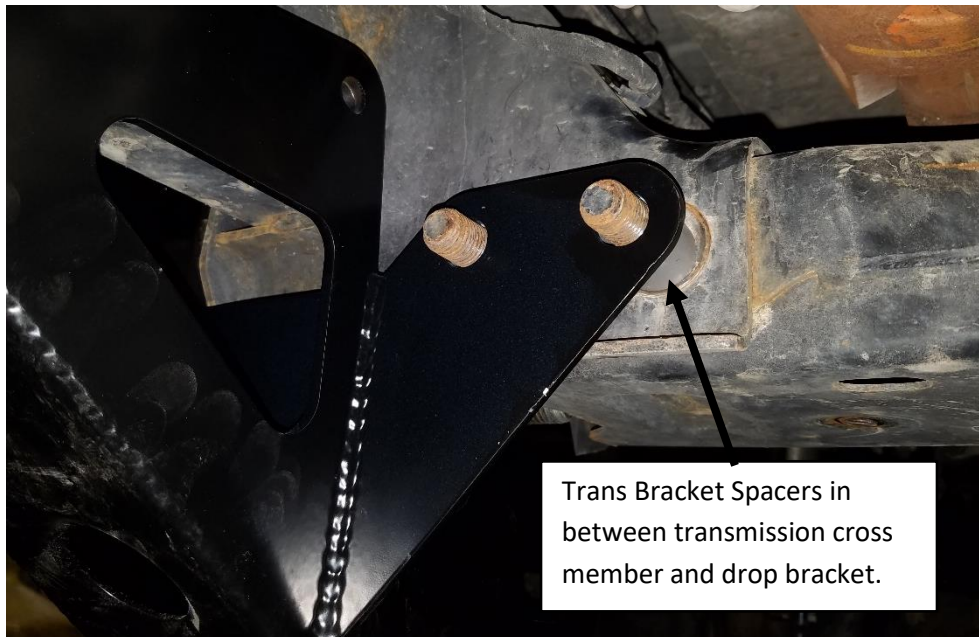


Figure 5. Transmission Bracket Spacer Installation

- Hand tighten the fasteners. They do not need to be torqued down at this point, just tight enough so that the bracket doesn't move around.
- Use a 1/2 inch drill bit and drill in the upper mounting holes to mark the location for the holes to be drilled in the frame. It is recommended to use a right angle drill if possible for the drilling. See **Figure 6**.



Figure 6. Using a Drill to Mark Hole Locations

9. Remove the bracket and continue to drill both sides all the way through the frame. It is critical that the hole is drilled perpendicular to the frame.
10. Reinstall bracket using the previous bolts used in steps 5 and 6. Try fitting the ½” x 4.5” long bolts in the newly drilled holes. You may need to enlarge the holes slightly to get them to fit.
11. Once the ½” bolts fit, pull the 18mm bolts out of the stock radius arm mounting location and install the OEM Radius Arm Spacer with the supplied 18mm bolts, nuts, and washers. See **Figure 7**.

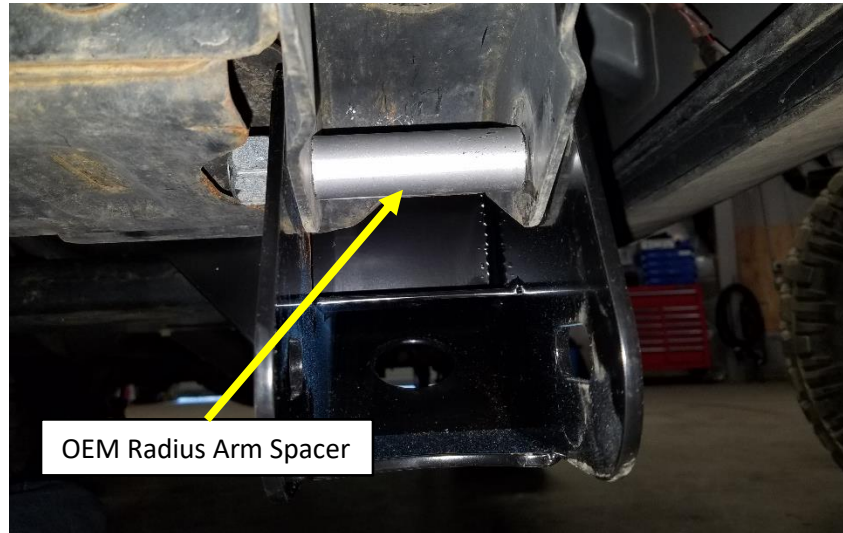


Figure 7. Radius Arm Spacer Installed in Stock Radius Arm Location

12. Reinstall the 5/8” bolts, washers, and nuts at this time and torque the ½”, 5/8”, and transmission cross member fasteners down at this point. For the ½” x 4.5” long bolts that go through the frame, do not install a washer under the nut on the inside of the frame. Leave the 18mm bolts loose at this time.
 - ½” hardware = 60lb-ft
 - 5/8” hardware = 100lb-ft
 - Trans cross member bolts = 80lb-ft
13. Determine which mounting position you’d like to install the radius arm, ½” forward or 1 ½” forward. See the notes at the beginning of the instructions to determine which position. Bolt hole to the rear moves the front axle ½” forward, bolt hole to the front moves it 1 ½” forward. See **Figure 8**.

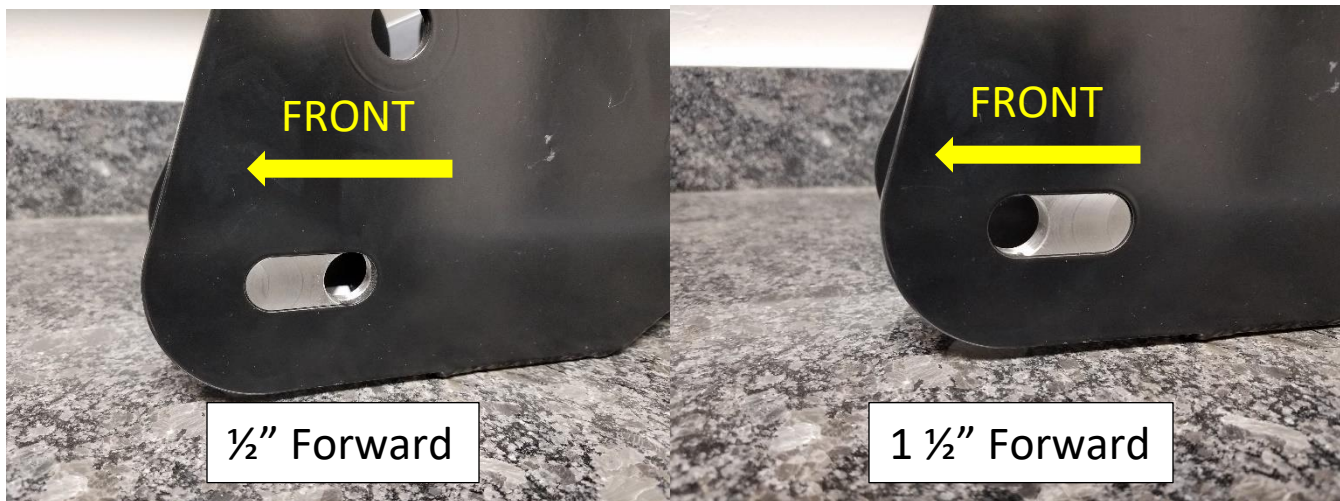


Figure 8. Radius Arm Position Spacer Installation Options

14. Install the offset radius arm spacers, one on each side, on the inside of the bracket. You can use a bit of silicone sealant to help hold the spacers to the bracket. See **Figures 9 and 10**.



Figure 9. Sealant Applied to Spacers



Figure 10. Radius Arm Position Spacers Installed

15. If you have removed any bolts attaching the radius arm to the axle housing now is a good time to put them back in and torque them down to 200lb-ft. Lift the radius arms up into place. It may be necessary to loosen the bolt in the OEM radius arm mount to get the brackets to spread enough to insert the radius arm in between the spacers. Also, since the axle has been moved forward, a ratchet strap or two can help in locating the axle in its new position. Once the radius arms line up in the brackets install the remaining new 18mm hardware.
16. Torque the OEM radius arm mounting bolts at this time to 200lb-ft.
17. Drop the truck down and onto its own weight and torque the new radius arm bolts to 200lb-ft.
18. Lastly make sure that the wiring harness from step 2 is nicely nestled on top of the Trans Bracket Spacers and in between the transmission cross member and the drop bracket. Make sure the harness is not contacting the exhaust. See **Figure 11**.



Figure 11. Wiring Harness Routing

Installation is Complete



Post-Installation Checklist

- Did you remember to torque all the hardware?
 - All four 18mm radius arm bolts, 200lb-ft.
 - The two 5/8 inch bolts going up into the frame, 100lb-ft.
 - The two 1/2 inch bolts going through the frame rails, 60lb-ft.
 - All four transmission cross member bolts, 80lb-ft.

- Are the radius arm bushings worn out? Do they need to be replaced?

- If you have moved the front axle 1 1/2" forward, have you checked for tire clearance at the front bumper and installed a driveshaft spacer?

- After driving the vehicle for approximately 100 miles, recheck all bolt torques.