



MARLIN CRAWLER HEAVY DUTY IFS DIFFERENTIAL DROP SYSTEM INSTALLATION

OVERVIEW

Thank you for purchasing our new HD Diff Drop System! You are holding the world's first TRUE ½" Differential Drop for 2003-2024 4Runner/FJ Cruiser/GX and 2005-2023 Tacoma. **This installer shows the install path for our ½" Drop Kit into a vehicle without RCLT HD.**

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HOW TO USE THIS INSTALLER

Before beginning, please read entire install guide and ensure all parts are present. The procedures are presented in a step-by-step format:

- The photo or illustration shows *what* to do and *where* to do it
- The task heading tells *what* to do

The detailed text tells *how* to perform the task and gives other information such as specifications and warnings



ESTIMATED INSTALL TIME

30 to 45 mins for main kit

1 hour 30 mins including all options

Installer version: **1.00RC2** (5/4/2026)

GENERAL REPAIR INSTRUCTIONS

1. Use fender, seat, and floor covers to keep the vehicle clean and prevent damage
2. During disassembly, keep parts in order to facilitate reassembly
3. Carefully observe all specifications for bolt tightening torques. Always use a torque wrench
4. Use a certified or experienced welder/fabricator whenever possible
5. Care must be taken when jacking up and supporting the vehicle
 - a. If the vehicle is to be jacked up only at the front end, be sure to block the rear wheels to ensure safety
 - b. After the vehicle is jacked up, be sure to support it on stands



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TOOLS REQUIRED

work in progress

KIT CONTENTS

work in progress



HALF-INCH DROP KIT INSTALLATION FOR NON-RCLT HD SETUPS



Fig 1

1. REMOVE STOCK BRACKETS

Remove skid plate (if equipped). Support differential with a floor jack.

Remove both forward frame mount bolts (at arrows in Figure 1).

Remove the two bolts securing the right-hand (passenger) bracket to the differential and remove the bracket.

Tilt the differential, remove the three bolts securing the left-hand (driver) bracket (circled in Figure 2) and remove the bracket.



Fig 2

2. REMOVE LEFT-HAND RACK BOLT

Remove entirely the left-hand steering rack bolt and nut and discard.

3. CLEARANCE HD LCA FRAME BRACE KIT

If you have our [HD Lower Control Arm Frame Brace Kit](#) installed prior to Summer 2026, then it must be modified to clear the new left-hand HD Drop Bracket. This may sound difficult, but takes under 10 mins.

IF YOU DO NOT HAVE THIS KIT INSTALLED: SKIP TO STEP 4.



Fig 3

3.1: TEMPORARILY ATTACH RIGHT-HAND HD DROP BRACKET ASSEMBLY

Attach new right-hand HD Drop Bracket at position A (Figure 3) using two original differential bracket bolts and four new large HD Washers, two above and two below the bushings. Hand-tighten.

At position B, install the HD Drop Bracket to the frame with an M14x100 bolt, one M14 flat washer, and an M14 flanged locknut from **Hardware Bag A**. Hand-tighten.

3.2: LOOSELY ATTACH LEFT-HAND HD DROP BRACKET ASSEMBLY

Using one M14x45 bolt and two yellow-zinc M14 flat washers from **Hardware Bag A**, attach the left-hand HD Drop Bracket to the differential at the **rear-most mount hole** (position A, Figure 4), placing one washer on each side of the bushings. Leave the bolt slightly loose.

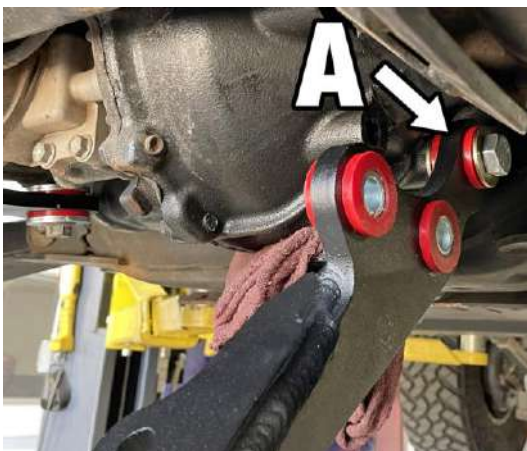


Fig 4

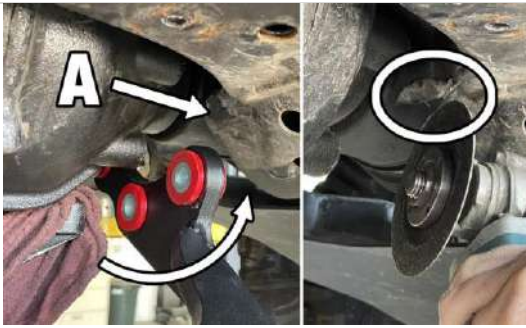


Fig 5

3.3: MARK AREA FOR CLEARANCE

Rotate bracket upward toward the frame and mark the contact area near A (Figure 5).

From that mark, add a second mark $\frac{1}{2}$ " further to provide clearance for the Diff Drop Bracket and the (eventual) forward-mount bolt head to pass vertically (see circled area in Figure 7).

3.4: CUT HD LCA FRAME BRACE LOWER BRACKET

Swing the bracket down and away. Cover it with a shop rag or towel. Using a die grinder with cut-off wheel, remove about a 1" to 1.5" section from the lower HD LCA Frame Brace plate similar to that in Figure 6.

Swing the bracket up and verify proper clearance.



Fig 6

3.5: REMOVE ENTIRE RIGHT-HAND HD DROP BRACKET

Remove the entire right-hand HD Diff Drop Bracket so that the differential is once again able to tilt from the pinion mount and move around some.

4. INSTALL LEFT-HAND HD DIFF DROP BRACKET

Tilt the differential to install three M14x45 bolts with two yellow-zinc M14 flat washers per bolt (**Hardware Bag A**), one washer on each side of each bushing, as shown in Figure 7.

Torque to 126 lb-ft dry (or 111 lubricated)



Fig 7

If our HD LCA Frame Brace Kit is installed as shown in these figures, the forward upper bolt (circled) may be hard to reach. Either:

- **Use a crowfoot wrench extension** and recalculate the required torque for the extension, or
- **Tighten the upper bolt by hand** with a hand wrench: torque the other two bolts first, then match the upper bolt by feel against those torqued bolts.

5. INSTALL RIGHT-HAND HD DIFF DROP BRACKET

Attach new right-hand HD Drop Bracket using two original differential bracket bolts and four new large HD Washers, two above and two below the bushings.

Torque to 118 lb-ft dry (or 104 lubricated)



Fig 8

Both HD Diff Drop Brackets are now installed to the differential (Figure 8).

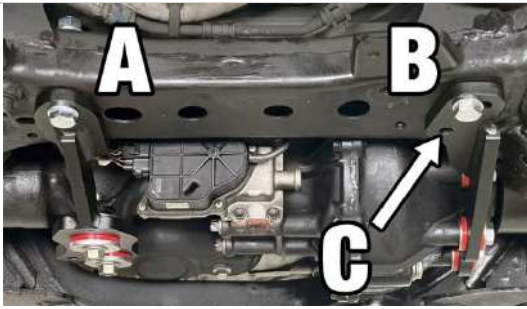


Fig 9

6. BOLT HD DIFF DROP BRACKETS TO FRAME

Using two M14x100 bolts, two M14 flat washers, and two M14 flanged locknuts from **Hardware Bags A & C**, attach brackets to frame at A & B in Figure 9. **Do not tighten.**

Bolt → Washer → Bracket → Frame → Flanged Locknut

If the bracket has a double-slot hole pattern as shown in Figure 10, use the below table to determine which hole to use:

| Inner Hole (B1) | Outer Hole (B2) |
|------------------|-----------------|
| 2003-2009 SUV | 2010-2024 SUV |
| 2005-2023 Tacoma | |
| RCLT HD | |

If the bracket only has one hole at B, then this is the same as inner hole B1.

TIP: Because hole B1 is used for RCLT HD, the double-slot hole pattern exists so that all HD Diff Drop Bracket Kits are RCLT HD-upgrade ready.



Fig 10

7. CHECK FOR INTERFERENCE

INFORMATION: The diff is now lower than ever before. Check for interference around inner axle CV boots by slowly rotating the axles. Ensure no contact of rotating parts, paying special attention to boot clamp and alignment bolt (Figure 11). Trim bolt if needed.



Fig 11

8. TORQUE BRACKETS TO FRAME

Using an M12x170 bolt, M12 flat washer, and M12 flange locknut (2003-2009 SUV or 2005-2023 Tacoma) or M14x170 bolt, M14 flat washer, and M14 flange locknut (2010-2024 SUV) from **Hardware Bag C**, bolt left-hand bracket through frame and steering rack at point C.

Bolt → Washer → Bracket → Frame → Rack → Flanged Locknut

Torque all three frame bolts as follows:

Torque A & B to 126 lb-ft dry (or 111 lubricated)

Torque C to 79 lb-ft dry (or 68 lubricated) for M12 hardware, or 126 lb-ft dry (or 111 lubricated) for M14 hardware



Fig 12



Fig 13

Installation is now complete.



OPTIONAL UPGRADES



Fig 14

1. [OPTIONAL] UPGRADE PINION FRAME MOUNT

INFORMATION: This only takes 1 min and increases pinion mount frame connection strength by 78%, significantly reducing the risk of the mount lifting and tearing out of the frame. Recommended for all installations.

Using an M11 Allen-socket, remove and discard factory lower pinion nut.

Insert new plate up through bottom of frame, followed by new M12 flanged nut from **Hardware Bag D**. Orientation and position is non-critical.

Torque Nut to 75 lb-ft dry (or 66 lb-ft lubricated)

2. [OPTIONAL] UPGRADE TO DOUBLE-SHEAR BRACKET

INFORMATION: This connects the right-hand bracket to the rear sub-frame crossmember, creating a strong double-shear differential mount. Recommended for setups running 37" tires or larger.

IMPORTANT: Only perform after HD Diff Drop is installed and all hardware torqued to ensure the double-shear bracket is in the correct final location.

Using two M12x40 flanged bolts, two M12 flat washers, and two M12 lock nuts from **Hardware Bag A**, attach plates as shown in Figure 15.

Bolt → Bracket → Washer → Nut

TIP: Use spare non-locking M12x1.25 nuts for faster setup.

TIP: Plates can be stacked above or below each other for placement flexibility. If you plan to install our HD LCA Frame Brace Kit, mount the frame plate higher as shown in the figures.

Rotate to a convenient position contacting the frame, **keeping at least a one-inch gap between middle bracket and engine oil pan**. Mark the area on the frame, then swing the parts back out of the way.

Clean the frame area using a wire brush, wheel, or sandpaper.

Swing parts back into position, hand-tighten nuts, then tac-weld to frame.

Remove the rear hardware and swing the middle plate forward (Figure 16).

Weld the frame plate to the frame. Once cooled, spray paint the area.

Once paint has dried, reattach middle plate using new hardware with locknuts.

Torque both nuts to 80 lb-ft dry (or 71 lubricated)



Fig 15



Fig 16



Fig 17



APPENDIX

work in progress

Break-in:

No break-in required.

Recommend rechecking the differential bracket and steering rack frame connection hardware torque once after ~2 weeks of driving to confirm everything has remained tight.

FAQ

Troubleshooting