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 1" Differential Drop for 2003-2024 4Runner/FJ Cruiser/GX and 2005-2023 Tacoma. **This installer shows the install path for our 1" Drop Kit into a vehicle with RCLT HD.**

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

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

1 hour 45 mins for main kit
2 hours 30 mins including all options

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

ONE-INCH DROP KIT INSTALLATION FOR RCLT HD SETUPS


Fig 1

1. REMOVE BOTH FORWARD DIFFERENTIAL BRACKETS

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

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

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


Fig 2

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

2. REMOVE PINION MOUNT

Remove both upper pinion mount bolts (Figure 3) and lower M12 Allen-socket nut located under the frame beneath the mount.

The differential will now float on the floor-jack with freedom to move and tilt.

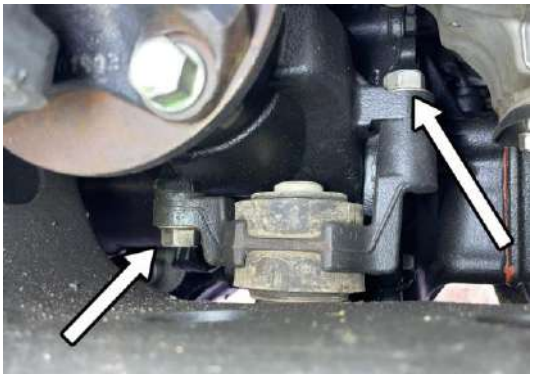
Fig 3

Raise the front drive shaft as shown in Figure 4 and remove the pinion mount.


Fig 4

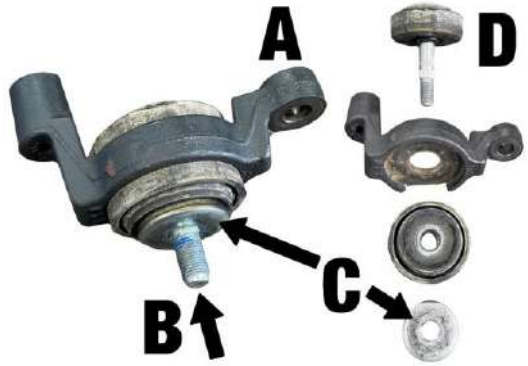

Fig 5

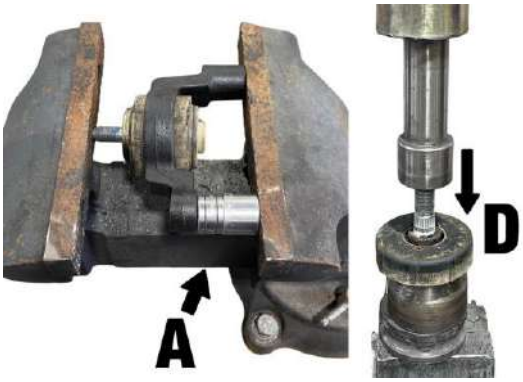

Fig 6

Fig 7

Fig 8

3.MODIFY PINION MOUNT

3.1. DISASSEMBLE PINION MOUNT

Place a ~1.25" spacer at point A and hammer or press stud B through the pinion mount. (Figure 6 shows this in a bench vise using a shallow socket as the spacer at point A.)

TIP: The stud is discarded – do not worry about damaging it.

Once stud B clears knurled thin washer C, the assembly will separate into four pieces.

IMPORTANT: Note and keep the original orientation of both bushings.

3.2: REMOVE STUD FROM UPPER BUSHING

Press the stud through upper bushing D (Figure 6, right) to separate the assembly into two parts. The press fit is long and continuous. If using a hammer, expect multiple controlled blows.

Discard original stud, allen-head nut, and knurled thin washer C (highlighted Yellow in Figure 7).

3.3: REASSEMBLE WITH NEW BOLT

Maintain original orientation of upper and lower bushings. Using the new M12 Bolt from **Hardware Bag D**, insert the bolt through: upper bushing D → pinion mount bracket → lower bushing (see Figure 8).

IMPORTANT: Do NOT reuse knurled washer C.

Pinion Mount is now modified.

Fig 9

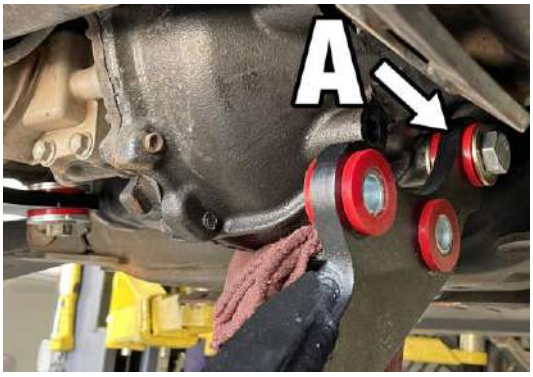

Fig 10

Fig 11


Fig 12

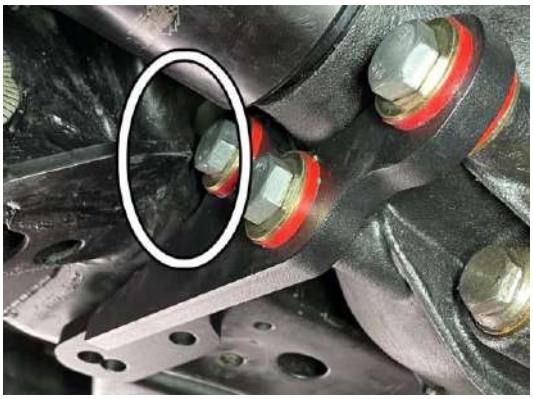
Fig 13

4. 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 NEXT PAGE.

4.1: TEMPORARILY ATTACH RIGHT-HAND HD DROP BRACKET ASSEMBLY

Attach new right-hand HD Drop Bracket at position A (Figure 9) 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.

NOTE: Pinion Mount is still NOT installed; the differential is held in its final position by the right-hand HD Drop Bracket and the floor-jack.

4.2: 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 10), placing one washer on each side of the bushings. Leave the bolt slightly loose.

4.3: MARK AREA FOR CLEARANCE

Rotate bracket upward toward the frame and mark the contact area near A (Figure 11).

From that mark, add a second mark ½" further to provide clearance for the Diff Drop Bracket and the (eventual) forward-mount bolt head to pass vertically (see circled area in Figure 13).

4.4: 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 12.

Swing the bracket up and verify proper clearance.

4.5: REMOVE ENTIRE RIGHT-HAND HD DROP BRACKET

Remove the entire right-hand HD Diff Drop Bracket so that the differential is once again free to move around in the sub-frame.

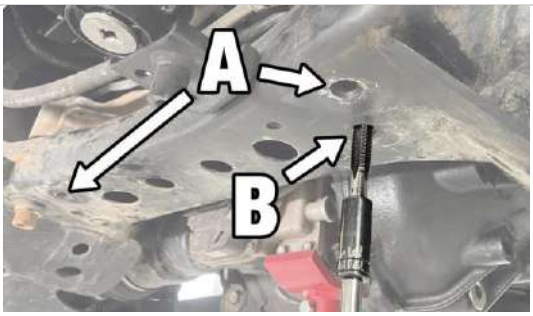

Fig 14

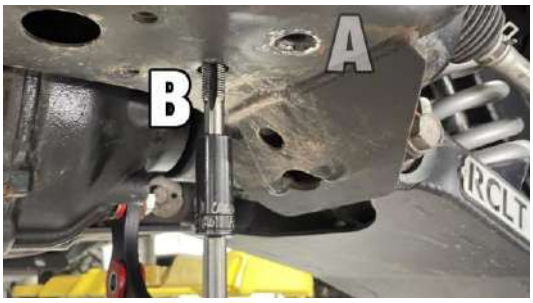

Fig 15

5. [OPTIONAL] TAP FOR OPTIONAL DUAL-BOLT MOUNT

RCLT HD installs leave the stock left-hand steering rack bolt hole vacant which can optionally be used to reinforce the left differential mount. Figure 14 shows the two forward differential mount holes (A) and the stock left steering rack **hole to tap (B)**.

NOTE: This step may also be performed any time after full installation by running the tap (and drill, if needed) up through the empty hole of the left-hand HD Diff Drop Bracket installed on the frame. But it is easier if performed now.

For 2003-2009 SUV or 2005-2023 Tacoma:

Tap vertically upward into the steering rack frame sleeve at B using an **M14x1.50 tap to a depth of 1.25”**. **The stock frame sleeve ID is 12.5mm** (proper size for this tap). If needed, quickly run a 12.5mm (or ½”) drill up into the frame sleeve before tapping.

Tap-and-drill kits are commonly sold together. Click to view an M14x1.50 Tap & 12.5mm Drill Kit Amazon Search, or scan the QR code →

For 2010-2024 SUV:

Tap vertically upward into the steering rack frame sleeve at B using an **M16x1.50 tap to a depth of 1.25”**. The tap requires a 14.5mm ID. Frames vary (14.2mm on 2015, 14.5mm on 2016…), so **first drill the factory frame sleeve with a 14.5mm (or 37/64”) bit before tapping.**

Tap-and-drill kits are commonly sold together. Click to view an M16x1.50 Tap & 14.5mm Drill Kit Amazon Search, or scan the QR code →

TIP: Always use cutting oil. Advance the tap a few turns, back it out, clean and re-oil, then repeat.

Everything is now prepared for final assembly.


Fig 16


Fig 17


Fig 18


Fig 19

6. INSTALL LEFT-HAND HD DIFF DROP BRACKET

Lower and tilt the differential's left-side to install three M14×45 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 16.

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

If our HD LCA Frame Brace Kit is installed as shown in these figures, the forward upper bolt may be hard to reach with a torque wrench. 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.

7. REINSTALL PINION MOUNT

INFORMATION: The One-Inch Drop Kit lowers the axle centerline 2.6× more than all 1" spacer kits while only increasing pinion-mount misalignment by 2°. Because of the slight tilt, the pinion mount must be angled so the two upper factory bolts align.

Raise the pinion (see Page 2 Figure 4) and reposition the modified pinion mount into its original location.

Starting with the upper bolt, pivot a pry-bar off a nearby bolt head (see arrow in Figure 17) to align the mount with the differential and thread-in the upper factory bolt. Hand-tighten, then back it off ½ turn.

TIP: Spend one whole minute carefully aligning upper hole. Once the bolt starts by hand, the rest is easy. This whole step should take under 5 mins.

With the mount positioned by the upper bolt, rotate the lower bolt hole into alignment and thread the lower factory bolt in from below.

Torque both bolts to 80 lb-ft dry (or 71 lubricated) using a crowfoot wrench extension

TIP: If you don't have a crowfoot, tighten by hand using about the same torque feel as a wheel lug nut.

8. 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)

Both HD Diff Drop Brackets are now installed to the differential (Figure 19).

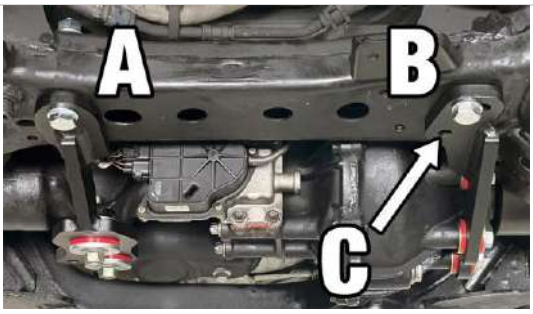

Fig 20


Fig 21

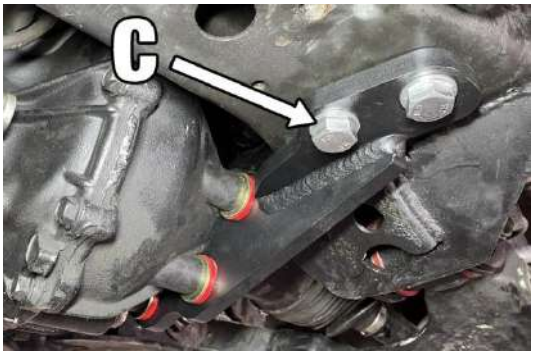

Fig 22

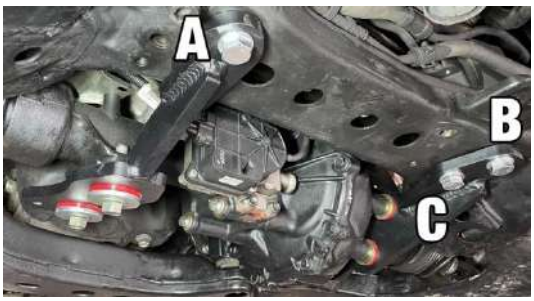

Fig 23


Fig 24

9. BOLT HD DIFF DROP BRACKETS TO FRAME

Using an M14x100 bolt, one M14 flat washer, and an M14 flanged locknut from **Hardware Bag A**, attach right-hand bracket to frame at A in Figure 20. **Do not tighten.**

Bolt → Washer → Bracket → Frame → Flanged Locknut

Using an M14x180 bolt and M14 flat washer from **Hardware Bag B** and M14 flange locknut from **Hardware Bag A**, bolt left-hand bracket all the way through frame and MarRack steering rack at point B. If the bracket has a double-slot hole pattern, use the **inward hole** as shown. **Do not tighten.**

Bolt → Washer → Bracket → Frame → MarRack → Flanged Locknut

10. 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 21). Trim bolt if needed.

11. TORQUE BRACKETS TO FRAME

If you tapped your frame in Step 5, install M14x45 C8.8 bolt (2003-2009 SUV or 2005-2023 Tacoma) or M16x45 C8.8 bolt (2010-2024 SUV) from **Hardware Bag B** at point C in Figure 22.

Bolt → Washer → Bracket → Frame (tapped threads)

Once bolts are inserted to the frame, final tighten.

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

Torque C to 90 lb-ft dry (or 80 lubricated) for M14 hardware, or 100 lb-ft dry (or 88 lubricated) for M16 hardware

12. UPGRADE PINION FRAME MOUNT

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 79 lb-ft dry (or 70 lb-ft lubricated)

TIP: Use a wrench atop the new pinion bolt head to prevent it from rotating.

Installation is now complete.

OPTIONAL UPGRADE


Fig 25


Fig 26


Fig 27

1. [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 25.

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 26).

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)

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