

JMACX

Off Road Solutions



RAM

CUSTOMER DODGE RAM DIFFERENTIAL GUIDE

Suits RAM DS 1500
RAM DT 1500



REV.6

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RAM 1500 DS & DT DIFF UPGRADES

WHY UPGRADE TO A JMACX RAM MODIFIED DIFFERENTIAL

Why upgrade the RAM 1500 factory diff? With increased horse power, a diff upgrade may be needed to cope with the power increase. Another factor is that increased axle load and the factory wheel bearings are inadequate. Other companies offer diff bracing, however this still leaves the diff with an inherent weakness. The additional diff bracing stops at the backing plate, which is well before the compromised bearing. Bracing the factory diff does not resolve the point of failure, see below for failure example.

The engineers at JMACX have developed a procedure of modifying the end of the tube, welding on a thicker tube axle and a full float bearing hub assembly. This allows for larger wheel bearings to cope with the additional axle load. Internally, the diff is strengthened by a full inner tube. Full floating bearings offer greater handling of larger loads. The JMACX diff upgrade increases the axle capacity to 2500kg.

The 9" diff option is the ultimate choice, as the strongest diff available. With bigger gear sets, upgraded parts and with the longest warranty. With a factory replacement diff close to \$24,000, the 9" JMACX diff represents quality and value.

GVM

JMACX also offer a RAM DS 1500 4200 GVM. This GVM includes a front brake upgrade, axle upgrade and a suspension upgrade including an exchange JMACX modified diff. Please contact JMACX for further information.

JMACX RAM diffs purchased outside a JMACX GVM

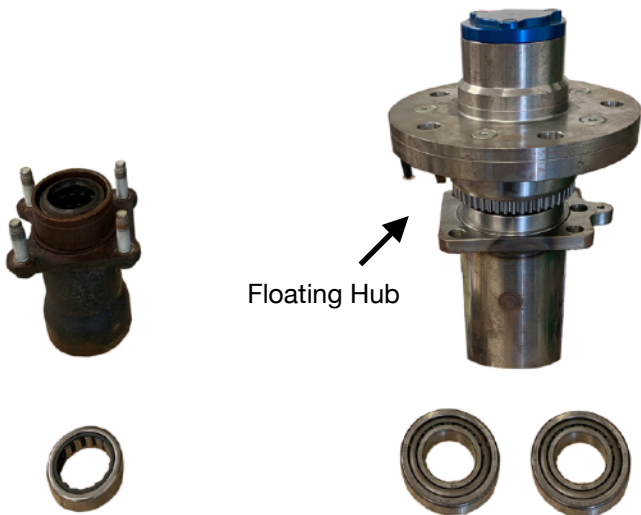
The JMACX RAM modified diffs and full 9" Ford diff can be purchased outside the JMACX GVM. However, buying the upgraded diff **Does Not** guarantee a higher GVM. Gaining a GVM requires brake testing and suspension upgrades etc to meet the extra demands a higher than factory GVM. The various tests that are required for a higher than factory GVM will be at the discretion of your engineer. The JMACX RAM modified range of diffs can only be purchased and installed by a JMACX approved facility.

Engineering

Fitting a JMACX upgraded diff will need to be signed off by an engineer, as it is a modified vehicle part. Upon purchase of the JMACX diff a 'Data engineering evidence pack' may be supplied upon request. This Data pack will only be supplied directly to an approved engineer or Transport authority under a non-disclosure agreement. Many facets of the JMACX upgraded diff housings are protected by Intellectual Patents.

FACTORY DIFF END

JMACX DIFF END



FACTORY SMALL BEARING X 1

JMACX UPGRADE LARGE BEARINGS X 2

Floating Hub

Please Note: Wheels will need to be bored through to 78mm to clear the JMACX upgraded floating hub.



Common failure for RAM 1500 wheel bearing area

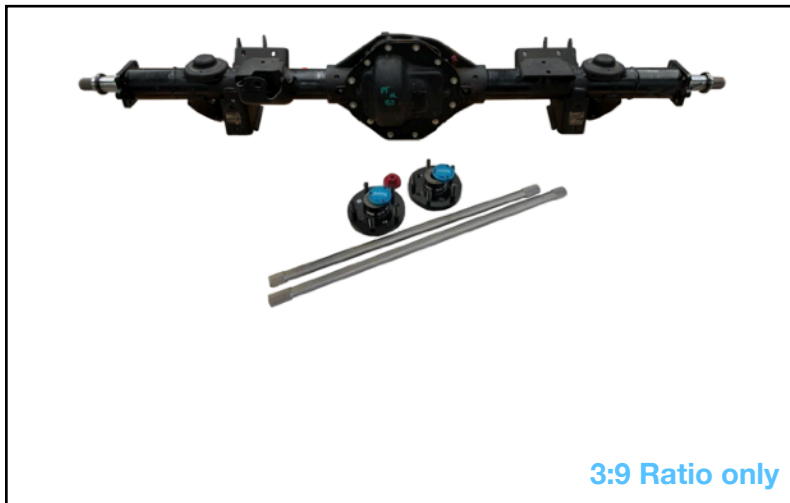


JMACX DODGE RAM DS & DT DIFFERENTIAL OPTIONS

The JMACX RAM DS & DT modified housing works on an undamaged core exchange basis. The customer agrees to relinquish their factory diff housing and is supplied a JMACX modified diff from stock. An Engineering Evidence Data pack can be supplied to approved Engineer/Transport authorities. See page 4 for warranty terms for the various options.

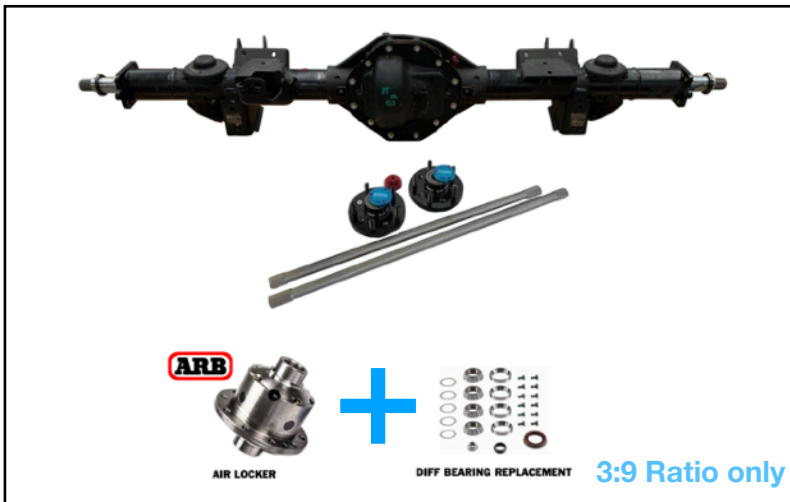
The range of JMACX RAM Differentials can only be purchased and installed by a JMACX approved facility.

The potential parts that may need to be replaced in your factory diff if found to have been damaged or worn are: crown wheel & pinion, pinion and carrier bearings, air locker or limited slip. If required these replacement parts will incur an extra cost.



Option 1 - Modified Housing Only

- * 300m axles
- * Full length axle tube reinforcing
- * Chrome moly spindles
- * Full float hub & wheel bearing kit
- * Uses factory brake ends



Option 2 - Modified Housing & ARB locker & new bearings

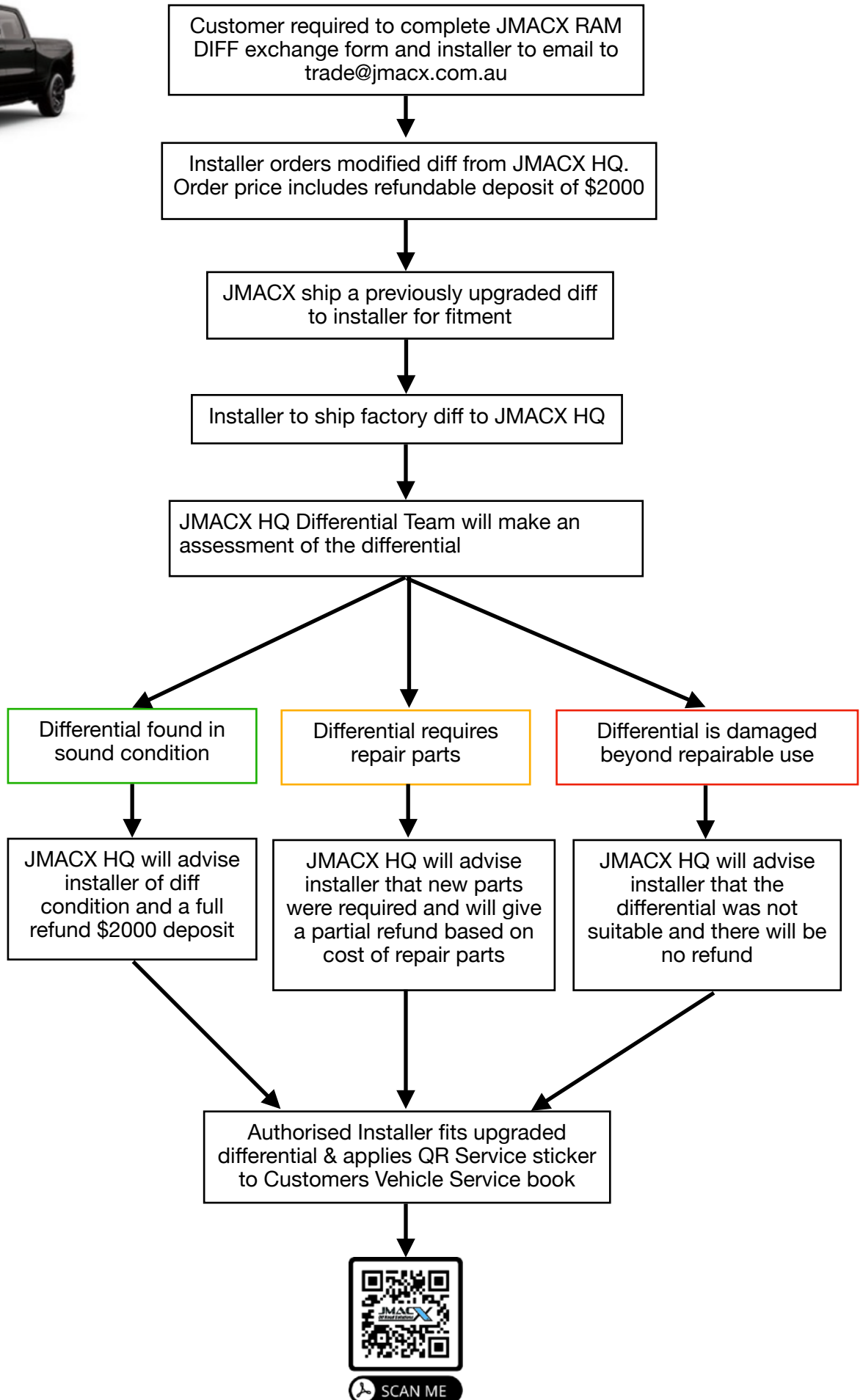
- * **ARB Air locker** (excluding compressor. Switches & air lines supplied but not fitted)
- * **New Diff bearings & seals**
- * 300m axles
- * Full length axle tube reinforcing
- * Chrome moly spindles
- * Full float hub & wheel bearing kit
- * Uses factory brake ends



Option 3 - Complete FORD 9" Housing & Air locker

- * New diff centre
- * 300m axles
- * Axle tube reinforcing
- * Chrome moly spindles
- * ARB air locker (excluding compressor. Switches & air lines supplied but not fitted)

CUSTOMER DIFFERENTIAL PROCESS



RAM DIFFERENTIAL EXCHANGE CONDITIONS/DISCLAIMER

Unless otherwise agreed in writing by **JMACX Off Road Solutions (ABN 24 335 506 695) / Teebro Pty Ltd** ("JMACX"), the customer agrees that it will be bound by these terms and conditions if the customer places an order with JMACX and the order is accepted by JMACX.

RAM REAR DIFF OPTIONS AVAILABLE

✓	OPTION	TYPE	WARRANTY
<input type="checkbox"/>	1	JMACX modified Ram Differential (Core exchange basis)	2 YRS - 40,000 KM JMACX Workmanship warranty
<input type="checkbox"/>	2	JMACX modified Ram Differential with ARB Air locker & Carrier pinion bearings & seals (Not incl. compressor unit & electrical wiring) (Core exchange basis)	3 YRS - 60,000 KM JMACX Workmanship ARB locker warranty 5 yrs (commercial or mining use 1 Yr 20,000km)
<input type="checkbox"/>	3	JMACX FORD 9" Replacement Differential with Locker (Not incl. compressor unit & wiring) (Core exchange basis)	3 YRS - 60,000 KM Full JMACX Manufacture & Parts Warranty ARB locker warranty 5 yrs

GENERAL

- These conditions apply to all Ram models.
- A JMACX Ram differential housing will not be provided without the return of this completed form.
- JMACX takes no responsibility for the original exchange differential centre and gearsets.
- The customers original factory differential may not be supplied back.
- A deposit of \$2000 will be required for core exchange. This deposit will be refundable depending on the condition of the differential when assessed by the JMACX HQ Differential Team. If the differential is deemed in sound rebuildable condition, a full deposit will be refunded. If additional parts are required only partial deposit will be refunded based on the cost of the repair parts. If the differential is damaged beyond repairable use then no deposit will be refunded.
- From delivery of the differential to JMACX HQ please allow 10 working days for your differential to be assessed by the JMACX HQ Differential Team and for your refund to be processed.
- JMACX Ram differential pricing DOES NOT include the compressor unit or any electrical/wiring to complete the air locker installation. These cost must be quoted by the Facility/Installer directly to the customer.
- Full Floating hub and axle design are covered by a patent, any attempt at replication will be meet with legal action.
- JMACX modified diffs are ONLY supplied in 3:91 ratio.

WARRANTY

- There is no warranty provided for the factory gear centre and gear sets. The factory centre is a Ram warranty item not JMACX. If you require a full or extended warranty option, an ARB airlocker and new bearings is recommended, select option 2 or 3. (Air lockers subject to availability)
- Workmanship warranty is defined as the JMACX aftermarket modification works to the differential housing. This is covered by a 2 year 40,000km warranty. Any additional parts to this is the purchasers responsibility to gain a warranty on the Ram factory parts. Any warranty required from incorrect installation is the Installers/Facility responsibility.
- Wheel bearings must be fitted and serviced correctly every **20,000km**. Diff oil must be changed every **12,000km**. Lack of driver maintenance and misuse will contribute to diff centre failure and void warranty.
- The JMACX warranty only applies to the original purchaser. Warranties are non transferable.

EXCHANGE CONDITIONS

The exchange differential housing must NOT be a previously modified housing and must not be damaged. The customer accepts that if the factory differential supplied is found to be unacceptable quality, the deposit may not be refunded. The delivery cost of the factory diff to JMACX is the installers responsibility.

Bank Details for Deposit Refund: Account Name: _____

BSB: _____ Account Number: _____

I HAVE READ AND UNDERSTAND THE ABOVE CONDITIONS

CUSTOMER NAME: _____

DATE: _____

CUSTOMER SIGNATURE: _____

VEHICLE REGO #: _____ QLD NSW NT ACT WA TAS SA

KM on Vehicle: _____

RAM 1500 DIFF LUBRICATION REQUIREMENTS:

Oil level must be suited to the application -

- * Factory oil level is acceptable if the hubs and splines are fully greased, and inner axle tube seals are installed.
- * **ENSURE HUBS ARE THOROUGHLY LUBRICATED BEFORE RUNNING ON A CHASSIS OR HUB DYNO.**
- * **Replacement Differential oil:**
MODIFIED DIFF = ProGear 75W90
9" DIFF = Richmond Gear Oil 75W-140, Motive Oil 75W-140 GL-6
- * Recommended to use an appropriate "ADDITIVE" for the limited slip differential like *NULON Smooth shift. Part # G70*

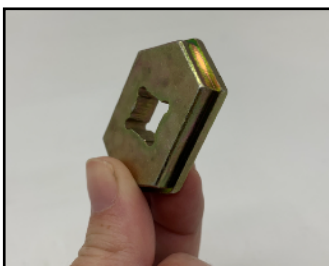


RAM 1500 DS & DT DIFF MAINTENANCE REQUIREMENTS:

INTERVALS	PART	MAINTENANCE REQUIRED
Periodic Visual	General	Periodic visual inspection of the entire assembly is required. Check torque on all fasteners. Rotate hub assembly with drive flange and Axle removed to check hub bearings for smoothness. Check for leaks.
Every 12,000 km	Oil Change	Oil must be changed every 12,000km Recommended ProGear 75W90
Every 20,000 km	Bearings	Strip, inspect & repack bearings with high quality bearing grease. JMACX recommend to fit both a new 'Drive flange oil / Axle seal' and a 'Drive flange to hub o-ring'.
Every 80,000 km	Bearings	REPLACE bearing - SEVERE DUTY/USE MAY REQUIRE REPLACEMENT SOONER

DIFF ADJUSTMENT & HUB NUT TOOL -

To be kept with vehicle for any future diff centre/alignment adjustments. Diff adjustment tool is designed to be used in conjunction with a 3/8" extension bar for adjusting diff backlash.



Diff Adjustment tool



A. Hub nut tool
(This tool requires the axle to be removed for wheel bearing service)



B. Hub nut tool does not require axle to be removed.

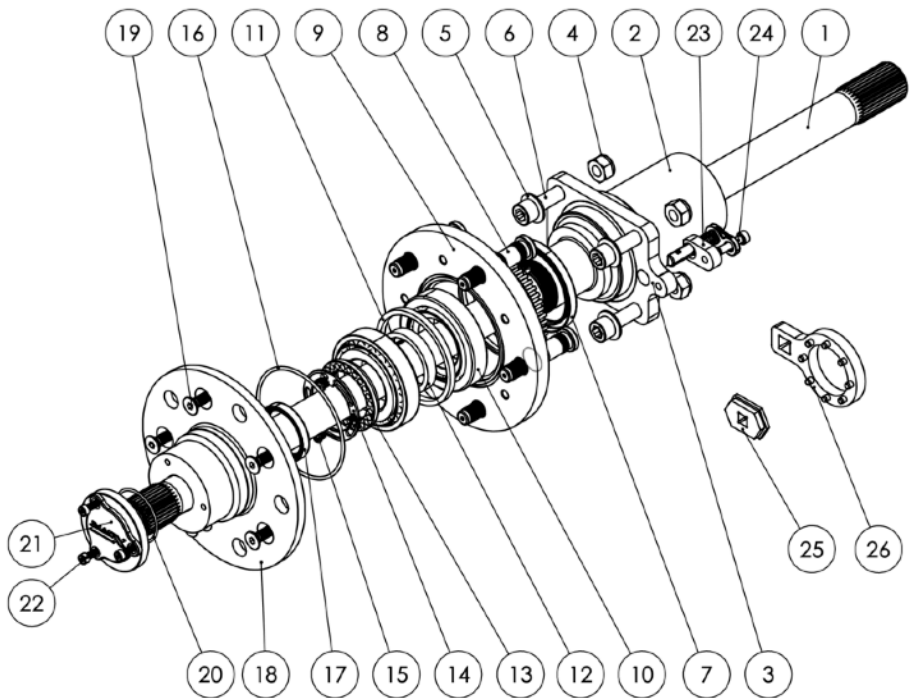


3/8" Extension Bar (Not Supplied)

REPLACEMENT PARTS:

PART	QTY PER WHEEL	SIZE/PART #	Number on Below chart
Tapered Roller Bearings	2	30209M	10
Drive Plate oil seal	1	TC40x50x8 or SKF563422	17
Hub Oil seal	1	TC65x80x8	7
Drive Plate o-ring	1	BS154	16
End Cap o-ring	1	44mm x 2mm	20

PER SIDE		
ITEM NO.	DESCRIPTION	QTY.
1	AXLE LH/RH	1
2	SPINDLE LH/RH	1
3	BACKING PLATE FLANGE	1
4	M12 CONE LOCKING NUT	4
5	5/16 FLAT WASHER	4
6	M12x50 SHCS	4
7	HUB OIL SEAL	1
8	WHEEL STUD	5
9	HUB	1
10	TAPERED ROLLER BEARING	2
11	BEARING SPACER	1
12	PRELOAD SPACER	1
13	SPINDLE NUT LH/RH	1
14	SPINDLE NUT LOCKING RING	1
15	LOCK RING RETAINING BOLT	2
16	DRIVE PLATE ORING	1
17	DRIVE PLATE OIL SEAL	1
18	DRIVE PLATE	1
19	M8x20 CSK BOLT	5
20	END CAP ORING	1
21	END CAP	1
22	M5x16 SHCS	3
23	SENSOR SPACER	1
24	M6x25 SHCS	1
25	HEMISPHERE ADJUSTER TOOL	1
26	SPINDLE NUT TOOL	1



SERVICE QR CODE



SCAN ME

Your installer will place a Service QR sticker on the front of the Factory RAM log book for future servicing guides. If you do not receive this sticker please contact JMACX for a replacement immediately



RAM DS & DT DIFF SERVICE REPLACEMENT PARTS



Hub is preassembled.
Components shown in blue box



AXLE REMOVAL GUIDE ONLY FOR FUTURE DIFF CENTRE/ ADJUSTMENT BACKLASH:

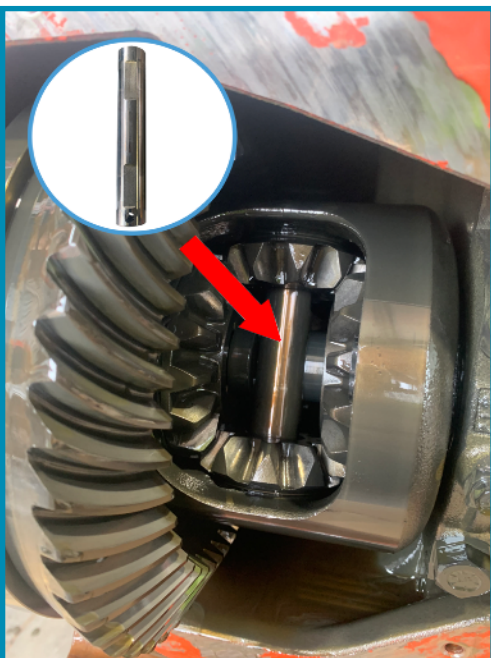


**DO NOT TOUCH BEARING CAPS & LOCKING TABS
DO NOT ADJUST BACKLASH UNLESS NECESSARY**

1. Drain fluid and remove back cover.
2. Mark planetary gears for installation later.
3. Remove M8 bolt on the hemisphere that is retaining the planetary gears.



4. Slide planetary shaft out.



5. Push axles in and "C" clip will come out.



6. Remove axles. Keep in mind that once the axles are removed the planetary gears and LSD clutch parts may fall out.
7. Reinstall planetary shaft and M8 bolt with a small amount of Red LOCTITE.

**** AXLE SHAFTS ARE L/H & R/H SPECIFIC ****