



**PSRMAZ-007**

## Mazda BT50 / PX Ranger Diff Drop System



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## Installation Guide

### IMPORTANT NOTES:

- Always use correct PPE to the task.
- It is recommended to read all steps involved in installation before starting.
- Follow the procedures outlined in the factory service manual for correct removal and re-installation of components.
- If it is necessary to lift vehicle off the ground for product installation, consult the owner's manual for correct procedure.
- On occasion this installation guide may direct the installer to re-use existing factory fasteners. Before re-using the fasteners, inspect the fasteners and renew if required.
- It is recommended that before installing any fasteners into a threaded hole in the vehicle chassis the thread is cleaned out with a tap and the thread is coated with an anti-seize compound.
- If the installation guide contains directions to perform any modifications to vehicle's electrical system, ensure any electrical modifications are performed by a qualified auto electrician.
- If welding to the vehicle chassis is required for product installation:
  - Consult with certified persons about correct welding procedures and local regulations before beginning installation;
  - Ensure no damage can occur to battery or vehicle electronics by placing the welder earth lead as close as possible to the welding area and connecting an anti-zap surge protection device to the battery.
  - External/Internal paint/corrosion control is required to be performed and continue to be performed for chassis longevity.
- When performing a body lift:
  - Always check every component that connects the body to the chassis, even if they are NOT mentioned in the Installation Guide, they may be required to be modified to suit the new gap. Never have an item tight as body mounts move.
  - Always lift the vehicle body equally and DO NOT lift more than required to install supplied blocks. Lifting more than required may damage or break components connecting the chassis to the body.
  - Always check all rotating engine components before startup and allow adequate clearance around them for engine movement.

**NOTE: WELDED PART IS INSTALLED UNDER DIFF CENTER ON L/H (PASSENGER) SIDE. DON'T LAUGH, MULTIPLE TIMES IT HAS BEEN INSTALLED WRONG.**

1. Safely lift vehicle
2. Remove ABS line and tuck into front inner guard to avoid damage.
3. Remove brake line from stub axle, remove brake caliper and hang in safe location to avoid stretching brake line.
4. Remove stub axle.
5. Remove strut.
6. Remove factory bash plates.
7. Remove lower arms.
8. Mark front driveshaft to avoid vibration after re-installation, remove driveshaft (*Figure 1*).
9. Remove diff, DO NOT REMOVE INNER CV BOOT CLAMPS; remove diff with CV shafts untouched!!!

10. Remove the upper diff mount. Location shown in *Figure 1* below.



**Figure 1:** Upper Diff Mount Location (Tailshaft Shown Still Installed)

11. Cut driver side diff mount from vehicle, grind smooth area. DO NOT gouge chassis rail. (welded mount on front side of chassis)
- Mark out and cut off as shown in *Figure 2* and *Figure 3*.
  - Paint bare metal.



**Figure 2:** Mark Out Driver Side Diff Mount to Cut



**Figure 3:** Cut off Diff Mount and grind smooth



12. On the **PASSENGER SIDE** of vehicle use template supplied (**PART 6**) to mark out cut to rear side of chassis.  
(Shown in *Figure 4* and *Figure 5*).

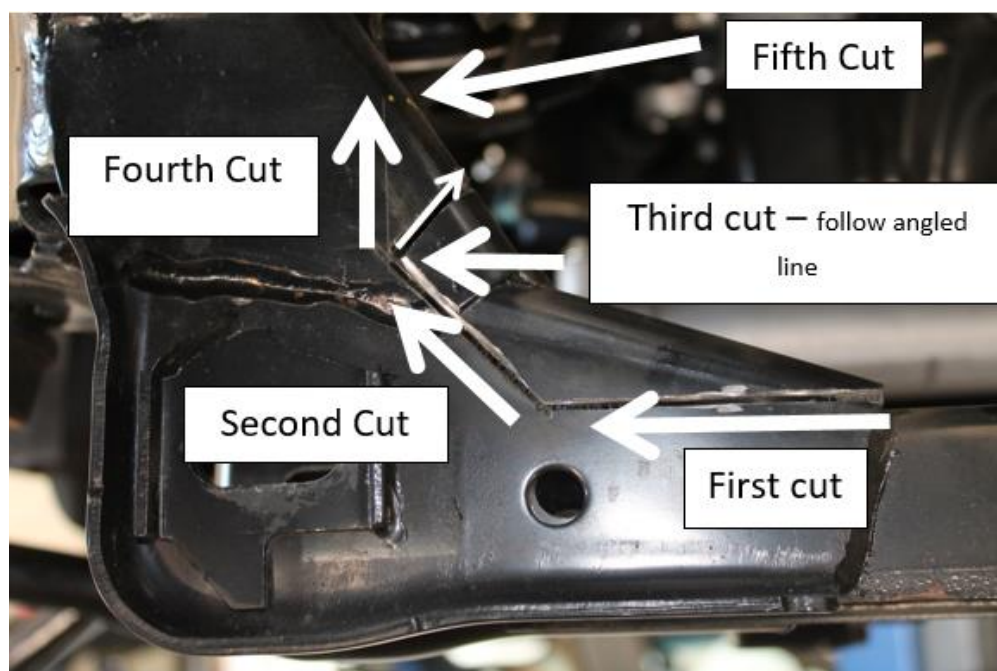


**Figure 4:** Chassis Marked (View from Rear)



**Figure 5:** Chassis Marked (View from Front)

NOTE: cut is easiest made in 4 stages, 1<sup>st</sup> cut along bottom line on both side, 2<sup>nd</sup> cut 45 degree angle on both sides, 3<sup>rd</sup> mark directly across top of 45 degree cut, cut through the chassis and remove piece 4<sup>th</sup> cut up along line and then across end of line at top, do not cut too high otherwise gap may be too large to weld. NOTE: use the center x-member to guide the cutting disk about 2mm above existing box x-member, this will give maximum clearance for the diff once dropped down, be care full not to cut too much away and make to gap too large so welding **PART 1** can't be done! **PART 1** SUPPLIED NON PAINTED and is to rest on center x-member when installed to give maximum diff clearance. INSTALL AS PICTURED IN *Figure 8*.



**Figure 6:** Best Method to Cut Notch

13. Clean area from paint and other foreign material, then weld.



Figure 7



Figure 8: Installing PART 1



14. Front diff mount under rack:

- a. Trim nut retainer from L/H side of mount and grind smooth of paint, ready for weld.
- b. Mark, as below (*Figure 9 & Figure 10*), using template supplied (**PART 7**).



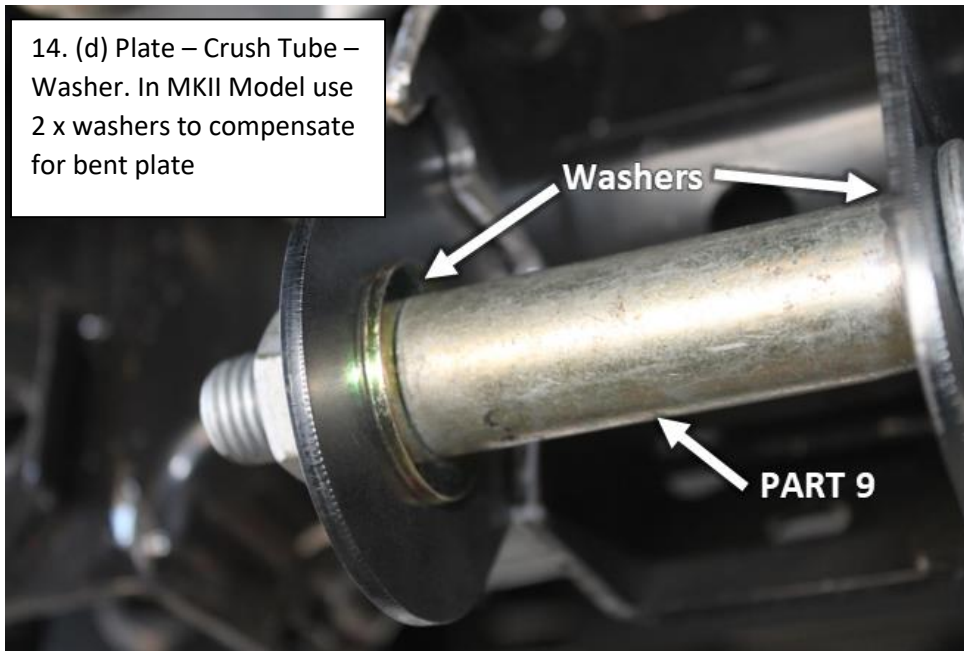
*Figure 9: Use Template (PART 7) to Mark for Cutting*



*Figure 10: Marked to Cut*

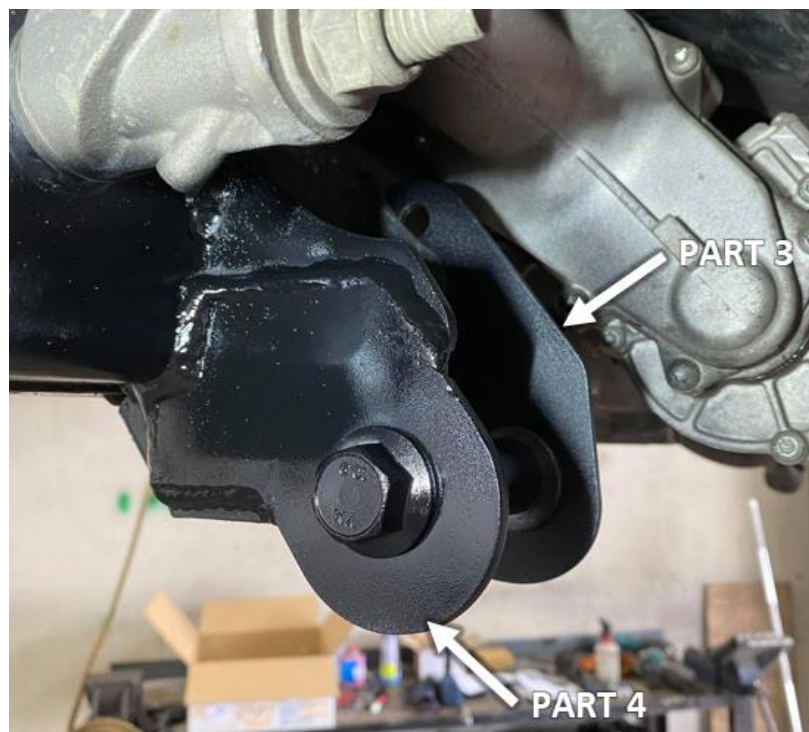
- c. Cut and remove material. Clean area of paint and foreign material.

- d. Now using supplied powder coated side plate (**PART 3**), bolt together with OE diff bolt and crush tube supplied (**PART 9**) with non-powder coated piece to be welded on (**PART 4**). See *Figure 11* and *Figure 12*. This will set the width of the plates so installation is square. Now weld.



*Figure 11: Installing PART 4 to be Welded*

15. Paint ALL area's affected by weld.



*Figure 12: After Welding and Painting*

16. Lower control arm need to be trimmed on the outer edge of the ball joint. Be careful not to damage ball joint boot. See *Figure 13* and *Figure 14*. **\*\*PX MK1 & MK2 Rangers Only. Not required for PX MK3\*\***



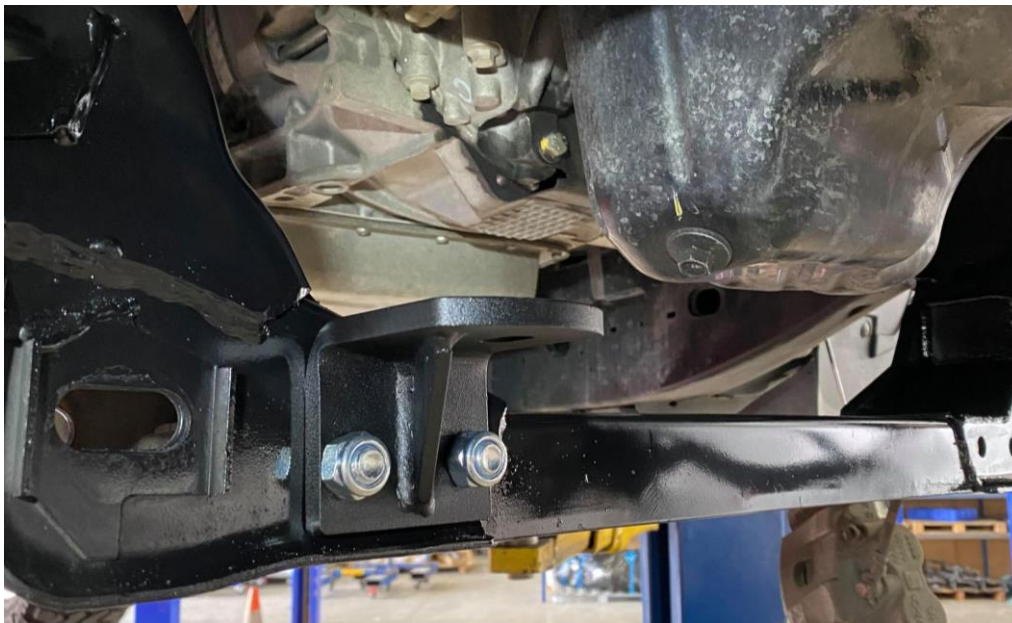
*Figure 13: LCA Marked Out to Trim*



*Figure 14: LCA After Trimming*



17. Install R/H diff mount (**PART 5**) with bolts supplied (see *Figure 15*), holes in chassis may need minor enlarging.



*Figure 15: Installing PART 5*

### PX Ranger MK1 and MK2:

18. Lift diff into position and secure using FRONT bolt and RH side mount loosely. Rest rear of diff on X-member. See *Figure 16* for installation of diff packers to reduce diff movement under torque.



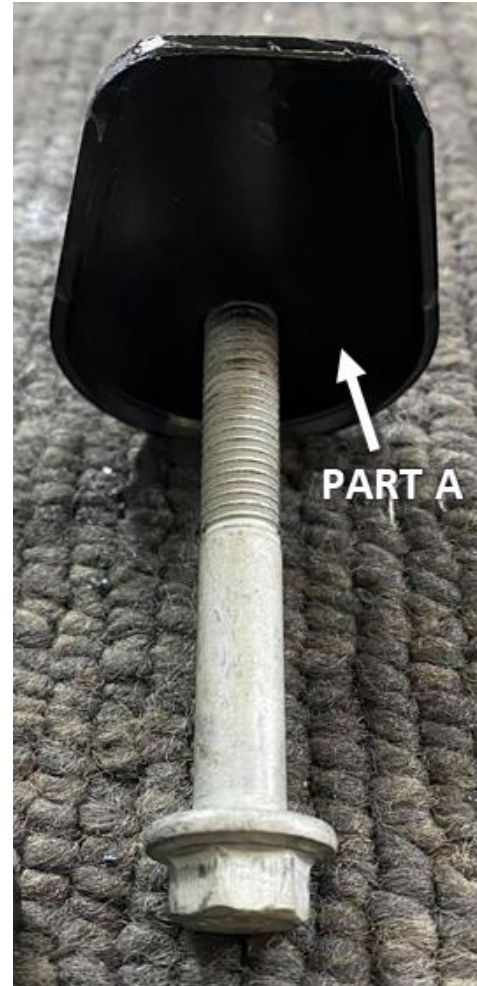
*Figure 16: Installing Diff*

### PX Ranger MK3 ONLY:

19. Take factory diff mount bracket and cut along dotted line as shown in *Figure 17*.
20. Grind cut edges round and paint to prevent corrosion as shown in *Figure 18*.



**Figure 17:** Modify Factory Bracket



**Figure 18:** Modified Factory Bracket

21. Follow the installation procedure as in **STEP 18**, installing **PART A** (Figure 18) into Position **A** indicated by arrow in *Figure 16* and install OE bolt from the bottom.



### PX Ranger MK1 and MK2 ONLY:

22. Remove metal sleeves from factory upper diff mount. See *Figure 19* below.



*Figure 19: Metal Sleeve to Remove*

23. Install **PART 2** to upper diff mount using the original bolts in the mount, use spring washers, nylock nuts supplied with LOCTITE to avoid coming loose in service (See *Figure 20*).



*Figure 20: Installing PART 2*



## PX Ranger MK3 ONLY:

24. Remove metal sleeves from factory upper diff mount. See *Figure 21* below.



*Figure 21: Metal Sleeve to Remove*

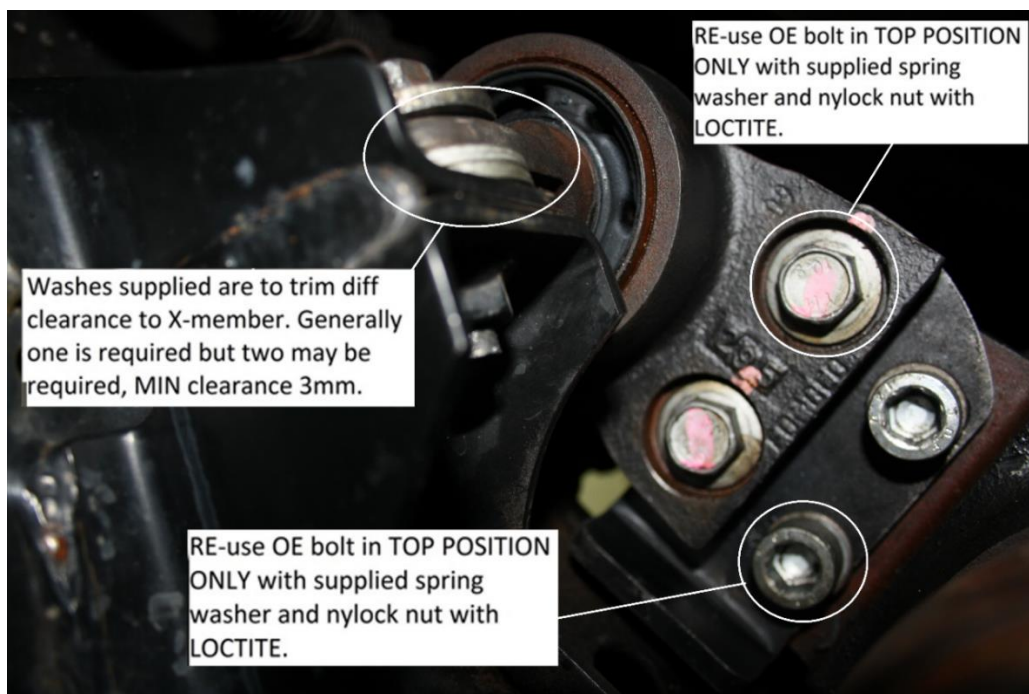
25. Install **PART 2** to upper diff mount using the original bolts in the mount, use spring washers, nyloc nuts supplied with LOCTITE to avoid coming loose in service (See *Figure 22*).



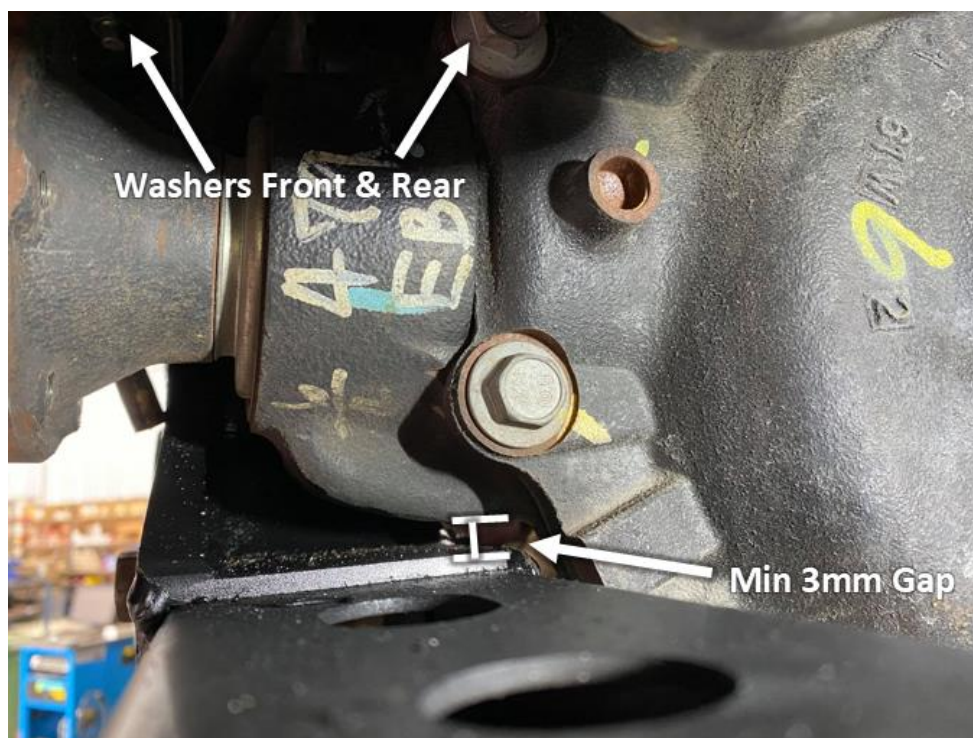
*Figure 22: Installing PART 2*

## ALL VARIANTS:

26. Then use new bolts supplied to bolt through plate into diff, again with spring washes and LOCTITE to avoid coming loose in service. See *Figure 23* Below.



*Figure 23: Installing Upper Diff Mount*



*Figure 24: Trimming Diff to X-Member Clearance*



27. Install strut.
28. Install lower arms, install lower shock bolt.
29. Install upper arms.
30. Re-install stub axle fixing lower ball joint first, then pulling onto CV joint, then connect with upper ball joint.
31. Double check all items are tight.

### **PX Ranger MK1 and MK2 ONLY:**

32. Install **PSRMAZ-003** Kit to REAR of front tailshaft. So you will need torx bit to suit and fit ONLY TO THE REAR OF FRONT TAILSHAFT! The spacer has 6 bolt holes and is supplied with cap head bolts to suit.

### **ALL VARIANTS:**

33. Wheel align vehicle.
34. Check tension of all fasteners after 1000km and re-torque if necessary.