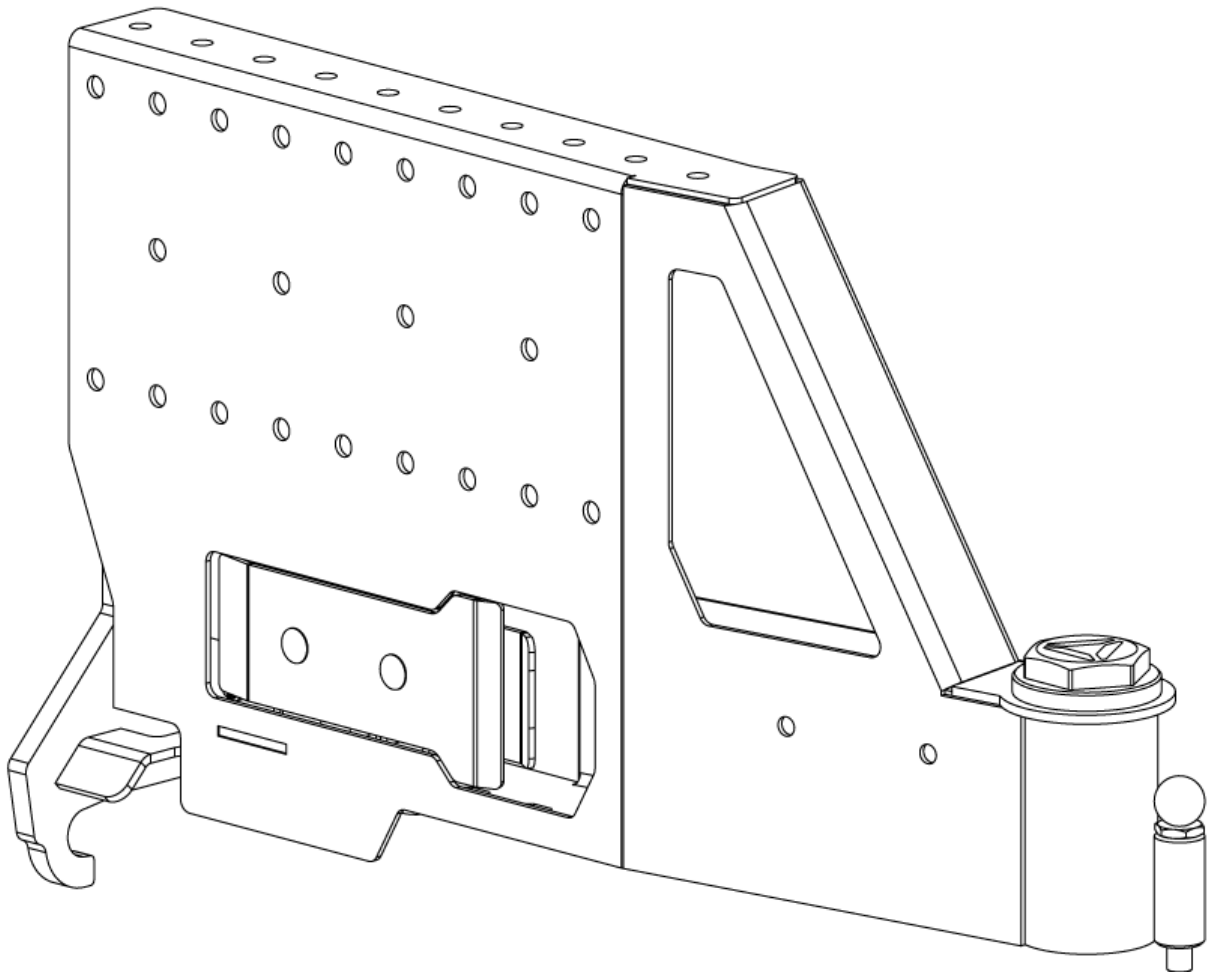


Land Cruiser Rear Bumper Swing Arm Installation & Latch Adjustment

Land Cruiser (LX450) Rear Bumper
1991-1997



Overview

Congratulations on your purchase of the DELTA Vehicle Systems Rear Bumper Swing Arms. These arms have been designed in CAD, CNC laser cut, formed, fabricated, and powder coated 100% in the U.S.A. The design allows for the mounting of any of DELTA's swing arm accessories, offering near-endless possibilities for adding functionality to your bumper and improving your overall experience with your vehicle.

Product Compatibility

This swing arm will work with any DELTA modular rear bumper, and is compatible with DELTA's entire range of swing arm accessories.

Parts List

Part Number	Description	Quantity	
Swing Arm Hardware Pack (1 per arm):			
10540	Swing Arm Hub Cap	1	<input type="checkbox"/>
10552	L44649 Bearing	1	<input type="checkbox"/>
10554	L68111 Bearing	1	<input type="checkbox"/>
10829	2.25 OD O-Ring	1	<input type="checkbox"/>
10832	Aluminum Ball Knob	1	<input type="checkbox"/>
11040	Bearing Seal	1	<input type="checkbox"/>
11373	Pull Pin	1	<input type="checkbox"/>
11660	1"-14 Nyloc Jam Nut	1	<input type="checkbox"/>
11661	1" Washer	1	<input type="checkbox"/>
Autolatch Hardware Pack (1 per arm):			
10393	5/16" Nyloc Nut	2	<input type="checkbox"/>
10654	5/16" Washer	2	<input type="checkbox"/>
10974	5/16"-18 x 3/4" Carriage Bolt	2	<input type="checkbox"/>
10662	3/8" Washer	4	<input type="checkbox"/>
10997	3/8"-16 Nyloc Nut	4	<input type="checkbox"/>
10844	3/8"-16 x 1" Carriage Bolt	2	<input type="checkbox"/>
11001	3/8"-16 x 1-1/4" Carriage Bolt	2	<input type="checkbox"/>
RHS Swing Arm Kit (10972):			
10624	RHS Swing Arm	1	<input type="checkbox"/>
10618	RHS Autolatch	1	<input type="checkbox"/>
LHS Swing Arm Kit (10973):			
10623	LHS Swing Arm	1	<input type="checkbox"/>
10620	LHS Autolatch	1	<input type="checkbox"/>

Packaged by: _____

Tools Required

- 1-7/16" 36mm, 3/4" (19mm), 9/16" (14mm), 1/2" (13mm) sockets
- 2" socket extension
- Socket wrench(es)
- 7/16", 9/16", 7/8" combination box wrenches
- Rubber mallet
- Latex gloves (recommended)
- Grease (synthetic grease or something similar)
- Loctite Threadlocker Blue or equivalent thread adhesive
- Anti-seize for threads (copper type for spark plugs works great)

1a

Insert Latch into Arm

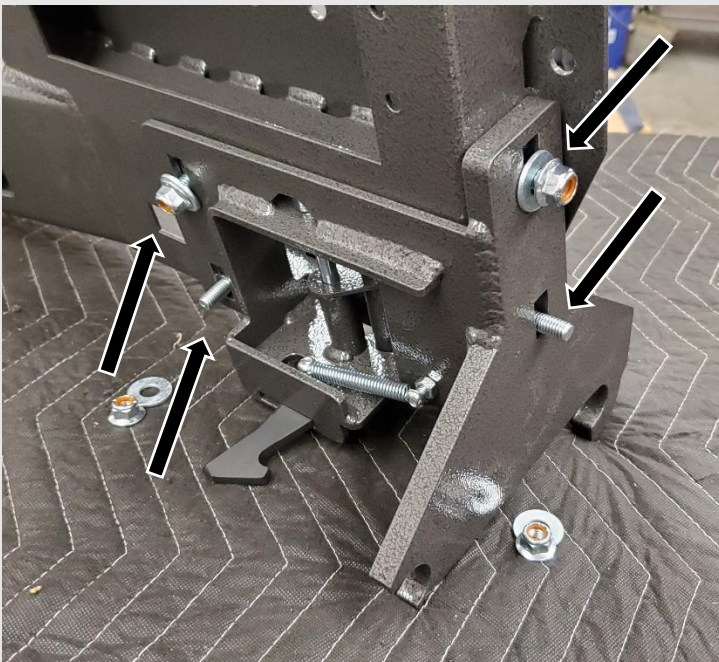


Open the latch box and retrieve the latch and hardware pack. Sort out the short and long 3/8" carriage bolts, there should be two of each.

Insert one of the latches into its place on one of the swing arms. Note that the left latch is only compatible with the left swing arm and vice versa, so if it doesn't fit, try a different latch/arm combination.

1b

Set Hardware



Insert the two long carriage bolts through the side interlock plate (downward facing arrows) and the two shorter bolts into the slotted holes in the front handle (upper facing arrows). Washers and flange nuts can be installed.

Snug up the top interlock plate bolt to hold the latch assembly in the upmost position in the arm. You should see top of the square slot above the hole. This is just the start point and the latch will be adjusted at a later step.

Now repeat steps 1a and 1b for the other latch and swing arm.

2

Grease Bearings



Get ready to get greasy!

Using either a bearing packer or your own two hands, thoroughly pack both bearings with grease.

Keep your gloves on, there's plenty of greasing left to do.

3

Grease Seal Surface and Thread of Swing Arm



Apply some grease around the interior seal surface and the thread on the swing arm, as shown.

Also apply grease all the way through the main hub, coating all the bare metal surfaces to prevent rust.

4

Grease Large Cylinder of Lockout Plunger and Plunger Hole

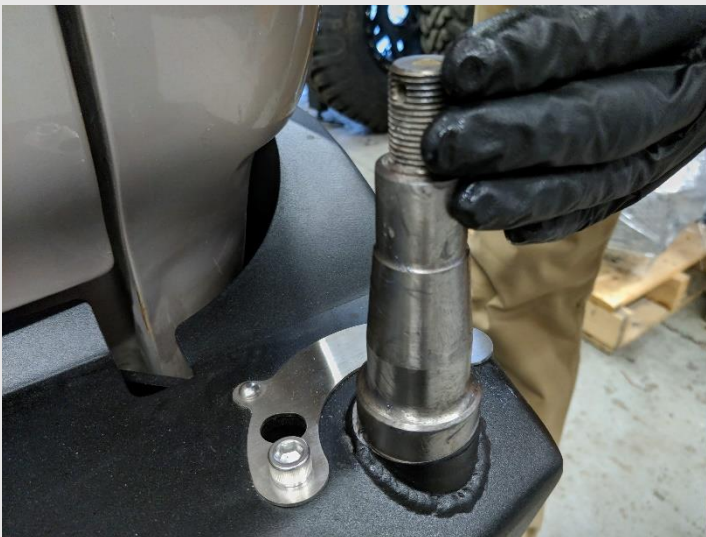


Apply some grease to the large cylinder on the lockout plunger, as well as its corresponding hole on the swing arm.

NOTE: If your lockout plunger ever gets stuck or stops working smoothly, cleaning and re-greasing it will leave it good as new!

5

Grease Swing Arm Spindle



Finally, grease the swing arm spindle on the bumper.

At this point, it's recommended to leave a glove on your non-dominant hand. This way, you will be able to use tools with your dominant hand and handle greasy things with the other.

6

Install Bottom Bearing and Seal



Insert the larger bearing into the bottom of the swing arm, oriented as shown, followed by the seal.

7

Drive in Seal and Bearing



Drive the seal into the swing arm until flush, using a rubber mallet and something to dissipate the force.

We used a cylinder of aluminum for this, but a 2x4 would work just as well!

8

Grease Interior of Seal



Apply some grease to the interior of the seal.

9

Install Lockout Plunger



Liberal apply anti-seize to the pull pin assembly, including the threads of the plunger nut.

Insert the lockout plunger into the hole on the swing arm and snug it down with a 7/8" wrench.

The aluminum knob cannot be attached while installing the plunger

Don't over-torque it; snug is enough.

10

Install Pull Knob on Lockout Plunger



Press in the bottom of the lockout plunger, then hold it in place while you unscrew and remove the nut, exposing the threads.

Be careful not to let go of the plunger; with nothing holding it in place, it will go flying!

Apply a small amount of thread adhesive (we used Loctite Threadlocker Blue) to two or three threads at the end of the plunger, and screw on the aluminum pull knob.

Hand-tightened is sufficient, as the thread adhesive will hold the

11

Lower Arm onto Spindle



Carefully lower the swing arm onto the bumper spindle; be sure not to damage the seal.

Do not attempt to close the swing arm at this time, as it is not yet aligned properly and will scratch the bumper and/or arm.

12

Install Top Bearing



Drop the smaller bearing onto the spindle. Wiggling the arm around a little bit while doing this can help seat the bearing.

13

Install Washer and Nut



Install the washer and nyloc nut onto the spindle on top of the bearing, and tighten it down until the bearing is snug.

A thin wall 36mm socket will be needed. Thicker-walled impact sockets will not fit in the hub.

There should be very little resistance when swinging the arm open and closed; if there is significant resistance, the nut is likely too tight.

NOTE: The spindle may need to be tightened a few days after installation.

14

Loosen Bolts on Latch Assembly and Bumper Latch Plate

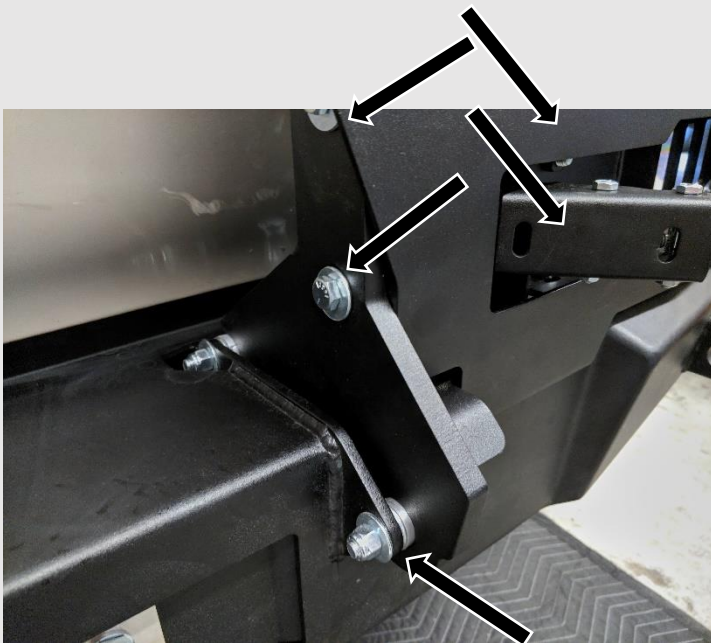


Loosen the three bolts on the bumper latch plate (the plate on the same side as the swing arm). The four bolts on the latch assembly should still be loose from earlier.

Once the latch plate is loose enough to slide back and forth, push it so that it is flush with the bumper at the spot indicated in the picture.

15

Lift Latch Assembly and Close Arm



Loosen the 4 carriage bolts (two on the side and two on the back, indicated with downward-pointing arrows) so the latch can slide up and down on the arm.

Loosen the lower latch interlock lug indicated with the up-pointing arrow.

Carefully lift up the latch assembly in the swing arm and slowly close it, guiding the interlock plate onto the aluminum lugs on the bumper.

Be careful not to scratch the latch strike pocket in the bumper while you do this.

Snug the lower interlock lug bolt when it is located in place by the latch.

16

Set Latch Adjustment Bolt



Under the bumper, the latch adjustment bolt can be accessed. Tightening this bolt draws the latch post towards the front of the vehicle, which sets the latch strike distance.

For now, tighten this bolt in small increments while checking how much wiggle room there is in the latch at each step. This bolt tensions the latch plate's position.

It is best to perform this step with the latch in the closed position. Do not over-torque!

17

Initial Latch Adjustment



Once you have the latch adjustment bolt initially set, snug the two accessible latch assembly bolts on the swing arm. Carefully open the latch all the way to the second stage and open the swing arm, so that you can snug the other two latch assembly bolts.

This step and the following adjustment steps may need to be repeated after the break in period.

18

Snug Latch Plate Bolts

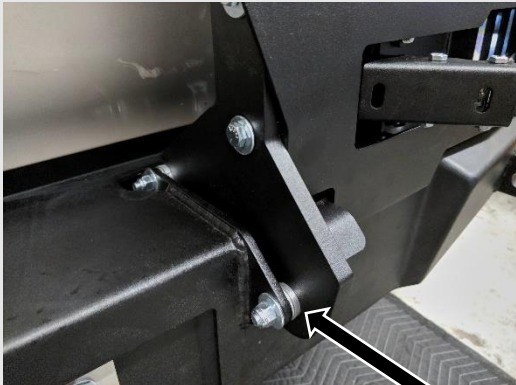


Snug the three bolts on the bumper latch plate. Be careful not to over-tighten and strip the center bolt especially.

The two 3/8" bolts should be tightened to 23 ft-lbs (31.18 Nm), and the 1/4" bolt should be tightened to 6.3 ft-lbs (8.5 Nm).

19

Fine Tune Latch Adjustment



Close the latch on the swing arm and check how much play there is. If the latch has wiggle room, you can try tightening the latch adjustment bolt more, but it might require some trial-and-error of sliding the latch plate slightly forwards or backwards and testing the fit.

In the end, the latch should be loose enough to close without significant resistance, but tight enough so there is no wiggle room when the latch is closed.

The auto latch should be able to grab the strike (depth is adjusted with the rear bolt) and the handle should be able to close with minimal force.

With the fine tune process complete, the lower interlock lug (up arrow) can be torqued to 37 ft-lbs (50.17 Nm).

20

Position Latch Handle Cover and Carriage Bolts



Put the latch handle plate and the carriage bolts in place on the latch. On the back side of the latch, you can access one of the bolts. Put a washer and a nyloc nut onto this bolt.

It helps to pin the washer and nut against the inside of the slotted holes and spin the carriage bolt from the outside.

21

Tighten First Carriage Bolt



Using a 1/2" socket on an extension, tighten down the first carriage bolt to 13 ft-lbs (17.6Nm) with the latch handle closed and the handle cover centered in the hole.

22

Tighten Second Carriage Bolt



Adjust the latch handle plate so that it has an even reveal with the cutout in the swing arm. Then, open the latch (while holding this plate in place) so that you can put a washer and nyloc nut on the other carriage bolt and tighten it down. Close the latch handle so that you can check if the reveal is still even, and make adjustments if needed.

Note on Latch Adjustment

You may now need to add more tension to the latch. Close the arm and latch it to test whether or not it has enough tension. If it feels loose, loosen the three bolts on the bumper latch plate, pull it farther back to tighten it, and tighten the bolts back down.

Additionally, this latch has a break-in period; you will likely need to fully readjust it by repeating steps 13-18 after a few hundred cycles.

23

Install Hub Cap



Install the hub cap onto the swing arm hub. Make sure that the o-ring in the cap is seated evenly, and then use the hub cap wrench provided with the bumper to snug it down until flush. Be careful not to over-torque, flushing the cover and snugging it is adequate.

The wrench should have been packaged with your bumper.

24

Crack a Cold One



Congratulations, you're all done! The wrench doubles as a bottle opener, so make good use of it and celebrate with your favorite beverage.

Keep the wrench somewhere accessible on your vehicle in case you need to service the swing arm in the future – or get thirsty.

Your swing arm is now ready to accept accessories and provide years of easy access to your vehicle.