



# CHEVY IMPALA 1992 - 1996 LSD INSTALLATION











## INSTALLATION INTRODUCTION

1. REMOVING THE FENDER, DOORS FROM THE A-PILLAR AND DISCONNECTING THE WIRE HARNESS @ THE DOOR JAM
2. REMOVING THE EXISTING DOOR HINGES FROM THE DOORS; TOP AND BOTTOM.
3. MODIFYING THE INTERNAL FENDER AREAS FOR THE HINGE CLEARANCE.
4. MODIFYING THE ELECTRICAL HARNESS.
5. INSTALLING THE GROUND PLATE TO THE A-PILLAR AND THE SWING ARM TO THE DOOR.
6. HANGING AND ALIGNING THE VEHICLE DOORS.
7. INSTALLING THE FENDER AND CHECKING FOR CLEARANCE.
8. REMOVE FENDER AND ROUTE THE WIRING.
9. RE-INSTALL FENDER AND CHECK FOR CLEARANCE.
10. JOB COMPLETE!





## Installation Instructions LamboStyleDoors

(The instructions are to be used as a reference only. Please repeat steps for both doors.)

### Pre-installation check list:

- Battery disconnected
- Front bumper removal
- Front fender removal
- Vehicle must be accident free
- Vehicle must have inner fender cover

### Preparations:

(Disassemble parts according to the vehicle manufacturers' specifications)

- Disassemble the door stopper
- Disconnect the wire harness between the chassis and the door (remove the harness from the door interior when necessary)
- Disassemble the door. For this procedure, remove the pin between the hinges.
- Modify the hinges at the A-pillar and on the door (please see enclosure "modifying the hinges").
- Extend the factory door wire harness with the enclosed wire harness extension kit. (See enclosed "wire harness extension".
- Modify the fender (See enclosed "modifying the fender".
- Relocate the door lock vacuum case (when necessary). (e.g. from the passenger's side inner fender to the engine compartment)
- Modify the windshield washer reservoir (when necessary). (see enclosed "modifying the windshield washer reservoir")



## DANGER WARNINGS



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LSD Doors must be installed according to the provided vehicle specific instructions from LSD Doors and installation should be performed by an authorized dealer.

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Always follow the latest accident prevention regulations (not applicable for North America) for each step to prevent any serious bodily harm or injury.

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Extending the factory wire harness must be completed according to the vehicle manufacturer's guidelines for cable repairs. When working with Share-data bus systems please take special care to correctly rerouting the wires and not to damage the wire insulation/shielding, twisting of the cables or interruption of any other systems (check with the specifications of the vehicle manufacturer).

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When modifying vehicles equipped with door side air bag systems, the functionality of the air bag system must be re-inspected through the vehicles authorized dealer.

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During final door adjustments please make sure that the door closes and locks correctly as o.e.m. specifications (see original door close angles, lock and gapping positions etc.)

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Please pay special attention while working in the operation area of the hinge system (especially when working directly with the pivot mechanism or in the overall door operation zone).

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All vehicle doors must be securely closed before setting vehicle into motion. Operating a vehicle with the doors open is strictly prohibited.

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Supplied vertical lifting door warning decals must be placed on the vehicles front side windows, clearly visible from both inside and outside. Not placing decals on your vehicle might void your vehicle operating license (not applicable for North America).

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**DO NOT** install heavier speaker systems without first raising the pressure of the gas spring.

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Please adjust the horizontal opening angle of the doors for maximum entrance space.

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Please pay attention to your gas springs and make sure they open and maintain your door at the maximum opening angle under all operation vehicle conditions.

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Make sure you empty the door pockets/storage compartments, so objects will not fall out once the door is raised and also not to offset the correct balance of the gas spring.

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**WARNING:** The gas spring is under extreme pressure! Please make sure the snap rings are installed correctly and are snapped their respective guides.

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## ! **Attention notice:**

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An additional inside support handle must be installed to solve the issue of possible difficulty of gripping the door, when raising and lowering your door from your seated position.

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If there are white lights on your door, these must be made ineffective, e. g. taking of the bulb and bulb holder according to fig. 5.22 ECE-law no. 48.

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After mounting the LSD hinge system you must reinstall your OEM inner fender covers to keep your LSD hinges free from debris and corrosion.

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You must have an authorized workshop check that the central locking system (if equipped) is working properly.

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You must have an authorized workshop check the functionality of all systems, switches and components (including: loudspeakers, alarm system, CAN data bus systems, window lifts, crash-sensor, memory seat adjustment, mirror adjustment and heating, etc. if equipped).

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While adjusting the door please take special care to position it in the matching door frame as not to cause any damages to paint etc.

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In case any chassis modifications were performed, please use the supplied chassis glue (if required for specific application) to seal any openings on the A-pillar or doors (make sure panels are free from grease and dust before applying chassis glue for a superior water tight seal).

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**NOTE:** please be aware your car might have different factory installed equipment from our tested R&D vehicle, in this case please contact your LSD dealer to order higher or lower power gas damper units (an additional cost may apply).

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Please note that the power of the gas dampers may fluctuate due to ambient temperature variations, the opening and closing forces may also differ according to damper manufacturers specifications (warranty claims will only be honored if there's an internal defect or an error in production).

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All LSD hinges come with a protective oil coating, please remove coating and then apply the included PSK spray for superior sealing of the finish.

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If any body work is performed, use Corrosion prevention methods according to the vehicle manufactures specifications.

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Updated installation instructions can be found on [www.lsd-doors.com](http://www.lsd-doors.com) (guide notes subject to change without notice).



## **General installation instructions:**

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A second person makes the work much easier. Please instruct the second person before start working.

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It is recommended to keep your LSD door hinges maintained on a regular basis for a lifetime of trouble free operation.

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## **General Lubrication Information**



In order for the LSD Door System to function properly, adequate lubrication is essential at all pivot points on the system. Periodic lubricating of all pivot points is highly recommended on a consistent basis. This helps in the life of all bearings involved.

Listed below are helpful hints of when to lubricate:

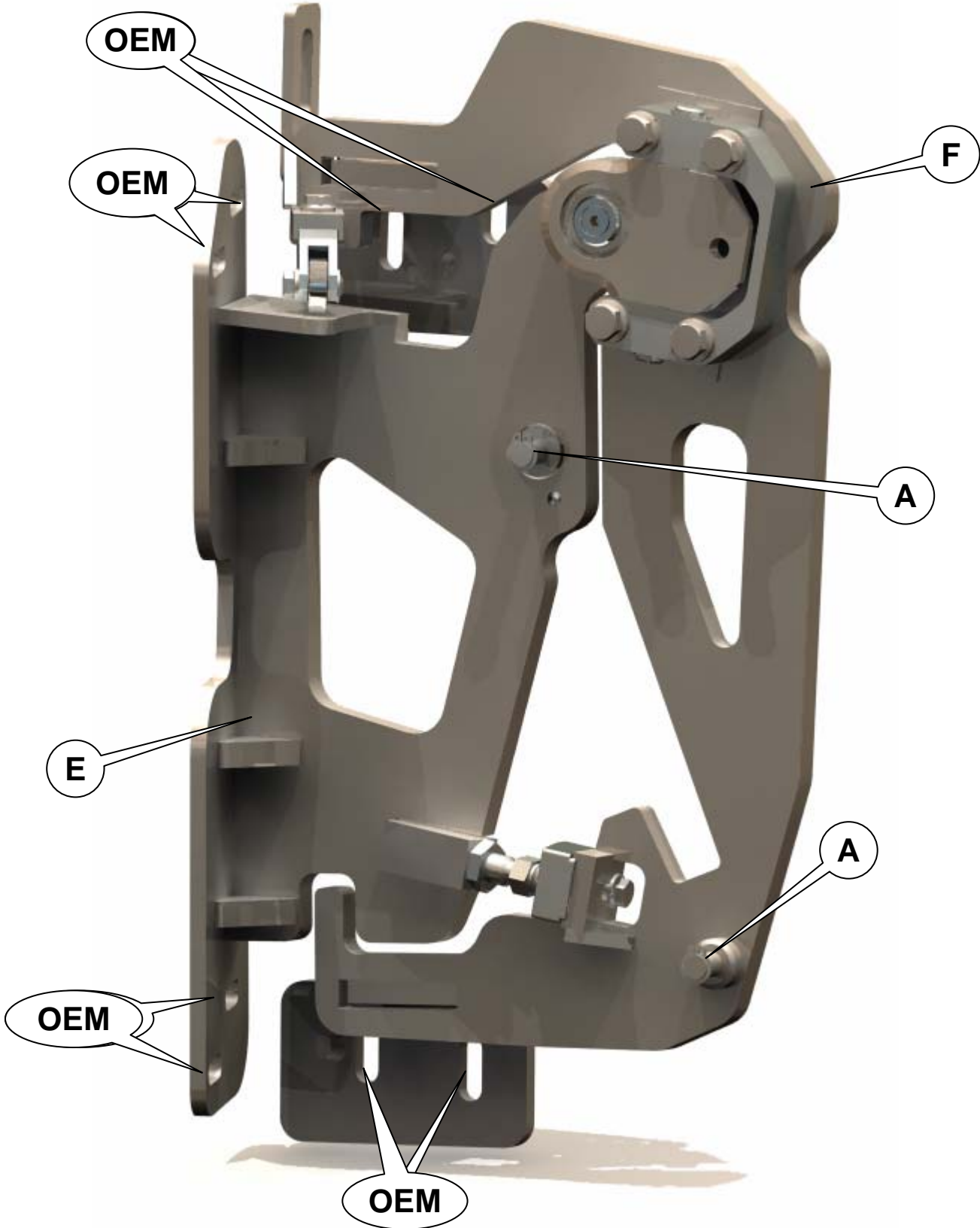
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- After washing the vehicle, open the doors and check to see that all pivot points are properly greased
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- Every three months, open doors and check to see that all pivot points are properly greased
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- If the vehicle is subject to a harsh environment, such as salt or sand, it is critical that all pivot points stay lubricated, especially if the doors are being used frequently, open doors and check to see that all pivot points are greased properly
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**HARDWARE LIST ( per vehicle side)**

<b>1x A</b>	<b>5X B</b>	<b>1x C</b>	<b>3x D</b>
			
Snap ring	Cable ties	Gas Damper 2450	M.A.R.A Shim
<b>1x E</b>	<b>1x F</b>	<b>1x G</b>	<b>2x H</b>
			
LSD Swing Arm	LSD Ground Plate	LSD Hinge Assembly	Cover plate
<b>2x I</b>	<b>1x J</b>		
			
LSD Warning notice	Shim Roller Mount		

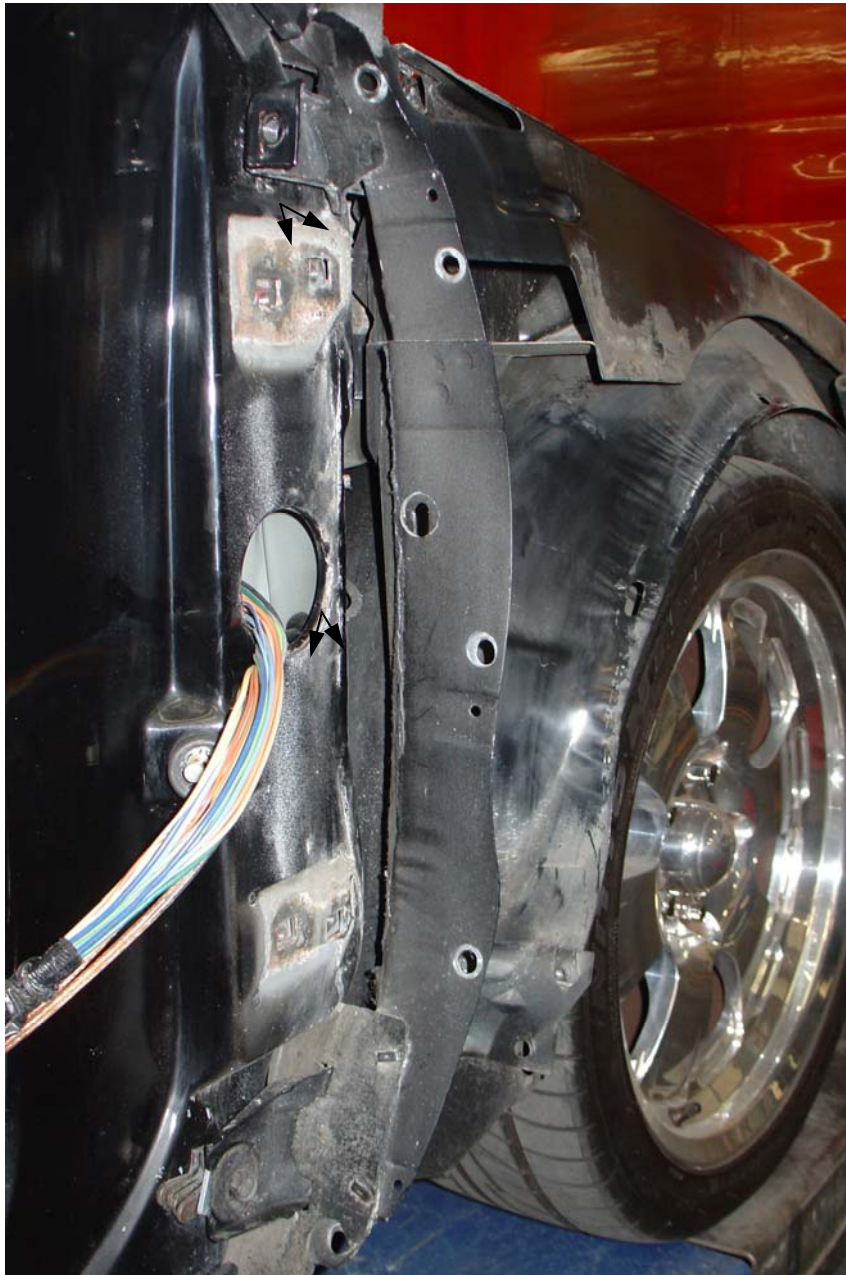




## ORIGINAL EQUIPMENT CHASSIS HINGE REMOVAL MODIFICATION

**IMPORTANT NOTE:** The following instructions given, in sequential order, is a step-by-step procedure to minimize any installation difficulty that may occur. By skipping steps, un-necessary problems can arise during the installation process.

On this particular vehicle, the hinges are bolted to the A-Pillar. Using a wrench, un-bolt both the two top mount bolts and the two bottom bolts that attach the hinge/door to the A-Pillar. Remove the door/hinges from the A-Pillar and carefully put aside.



**A-PILLAR**



## STEP 1 INNER FENDER MODIFICATION

For this particular application, once the outer fender has been removed, the inner fender needs to be modified, to accommodate the new LSD hinges. The following pictures show the areas





**STEP 1**      **INNER FENDER MODIFICATION –cont'd-**

For this particular application, once the outer fender has been removed, the inner fender needs to be modified, to accommodate the new LSD hinges. The following pictures show the areas (outlined in white) that will need to be removed.

- 1a.**      Using a cutting tool, a manual or pneumatic saw, begin cutting along the white line towards the top of the inner fender (**Photo 1**). Cut-out completely and remove (**Photo 2**).
- 1b.**      After the first cut has been done, this is what it should look like (**Photo 3**).



**PHOTO 1**



**PHOTO 2**



**PHOTO 3**



## STEP 1 INNER FENDER MODIFICATION –cont'd-

For this particular application, once the outer fender has been removed, the inner fender needs to be modified, to accommodate the new LSD hinges. The following pictures show the areas (outlined in white) that will need to be removed.

- 1c. The secondary cut for the removal of the large inner fender lip is done the same way as the first. With this area already outlined, begin cutting the lines you have marked (**Photo 3**).
- 1d. The final look of the area (**Photo 4**) is shown. We recommend that painting the exposed cut areas to match the color of the inner fender. This is done to prevent any rusting of the exposed areas.



**PHOTO 3**



**PHOTO 4**

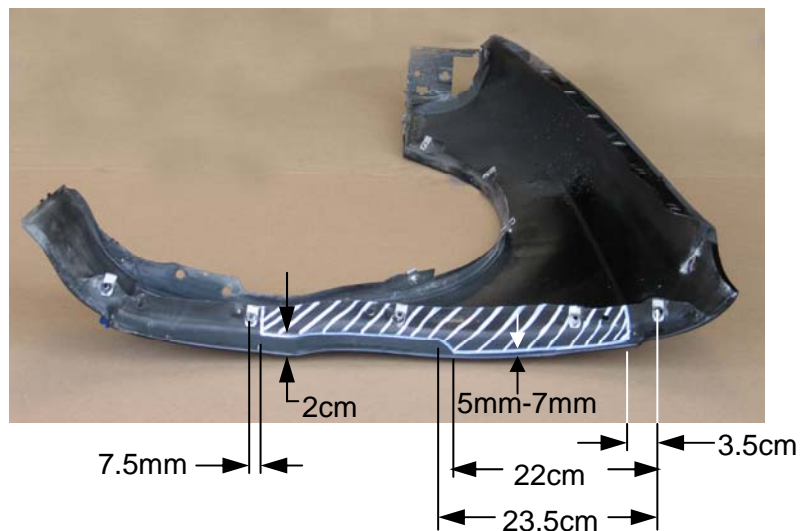
- 1e. This portion of the inner fender modification is complete.

## STEP 2 INNER FENDER MODIFICATION –cont’d-

For this particular application also, the outer fender also needs to be modified, to accommodate the new LSD hinges. The following pictures show the areas (outlined in white) that will need to be removed.

- 2a. This cut for the removal of the fender lip is done using a cutting tool. Outline the area using the dimensions given to you. This **(Photo 5)** shows the before cut.
- 2b. The final look of the area **(Photo 6)** is shown.

**PHOTO 5**



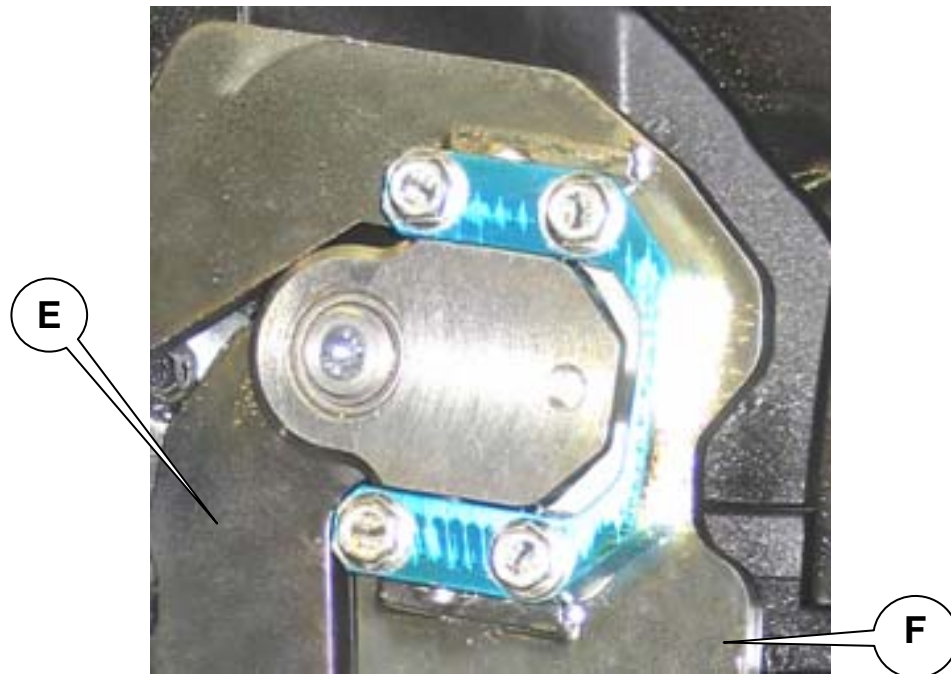
**PHOTO 6**





**STEP 3**      **DIS-ASSEMBLING THE SWING ARM FROM THE GROUND PLATE**

- 3a.**      Your new LSD Door Hinges have come assembled.
- 3b.**      As identified in **(Photo 8)**, disassemble the swing arm from the ground plate. Un-bolt all four mounting bolts or allen-heads and remove completely.



**PHOTO 8**

**PHOTO FOR REFERENCE ONLY**

## STEP 4 MOUNTING THE GROUND PLATE TO THE A-PILLAR

- 4a. Using the kit supplied mounting hardware for the Ground Plate, attach it to the A-Pillar. Finger tight initially, then using a wrench, torque to specifications. The photos below show the top and bottom mounting points of the Ground Plate.



**BOTTOM MOUNT**



**TOP MOUNT**

- 4b. For this particular application, there is an additional mount point that stiffens the top of the Ground Plate, giving the Ground Plate more rigidity. The photo below shows, using existing hardware, anchoring the top of the Ground plate to the top of the A-Pillar.





## STEP 5 MODIFYING THE CHASSIS WIRING HARNESS

**IMPORTANT NOTE:** Prior to beginning extending the wiring harness from the A-pillar, each individual wire needs to be cut one at a time. Each wire that is cut, **has to be staggered** (See 5g) from the previous cut wire. By doing this, you will eliminate, when wrapping all the wires, one large taped ball.

5a. If the wiring harness comes equipped with an insulation cover, this will need to be removed.

### STEPS 5b thru 5f are for REFERENCE ONLY (using white wire as reference)

- 5b. Isolate a single wire (**Photo 9**). Start the first cut on the white wire approximately 3" from the door frame.
- 5c. Cut the wire sheath (insulation) (coming from door frame) back approximately 1/4" (**Photo 10**). Twist the end tight.
- 5d. Cut the wire sheath (insulation) (from kit supplied white wire) back approximately 1/4". Twist the end tight.
- 5e. Using the kit supplied heat shrink connector ends, insert the wire ends into the connector, one from each end (**Photo 11**).
- 5f. Using the heat gun, shrink wrap the connector ends to securely mate with the wire ends (**Photo 12**).



PHOTO 9

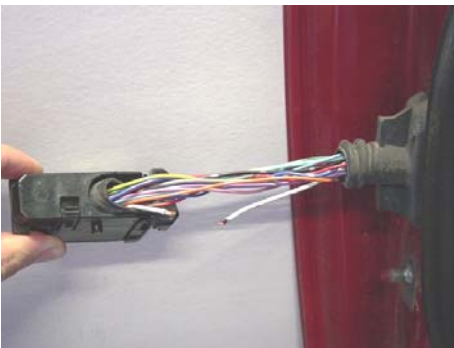


PHOTO 10

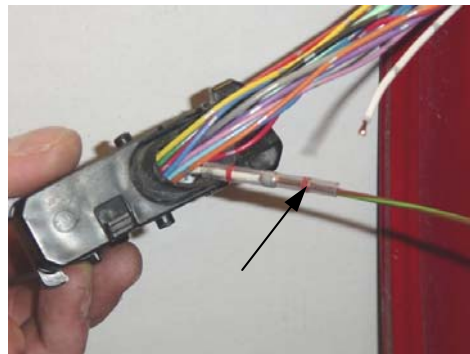


PHOTO 11



PHOTO 12





## STEP 5 MODIFYING THE CHASSIS WIRING HARNESS –cont'd-

### 5g. **VERY IMPORTANT:**

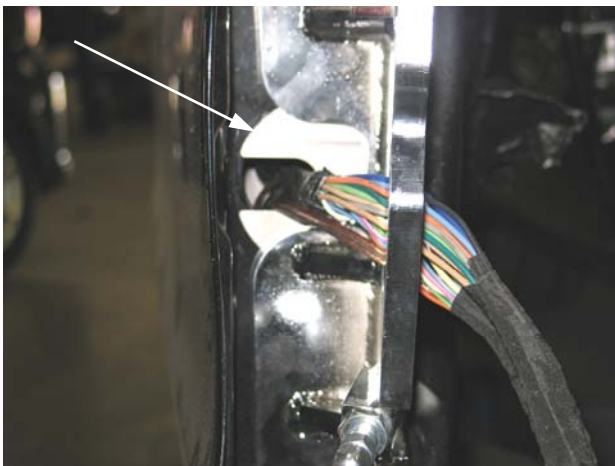
- 5h. Remember to stagger the cuts for each individual wire. This will eliminate having a large wrap and will allow for minimal size and maximum flexibility.
- 5i. In the photo below an (**INCORRECT**) version is shown. By cutting it this way, wrapping the wire at the end, will create a large ball in the middle of the newly extended wire harness. Wire harness flexibility would be minimal.
- 5j. By staggering the cuts, (**CORRECT**), you eliminate creating a large taped ball, thus making it easier to install back in the chassis. Wire harness would have minimal size and maximum flexibility.
- 5k. On this particular install, a kit supplied cover plate is used on the door itself (**Photo 13**). This cover plate is not mounted with any hardware, but instead is held in place by the LSD Swing Arm.
- 5m. Once both cover plates have been fed onto the new extension wire harness, you are able to attach the wire connector end of the A-Pillar (**Photo 14**).



**INCORRECT CUTS**



**CORRECT CUTS**



**PHOTO 13**

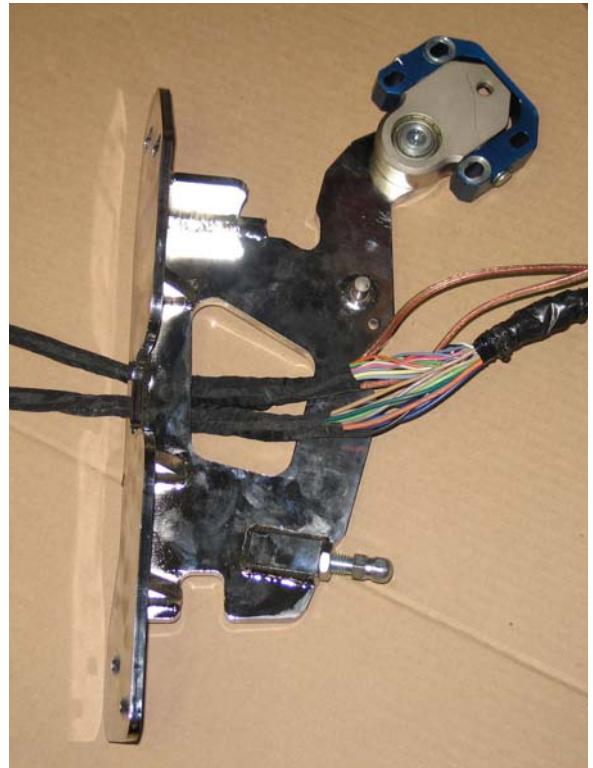
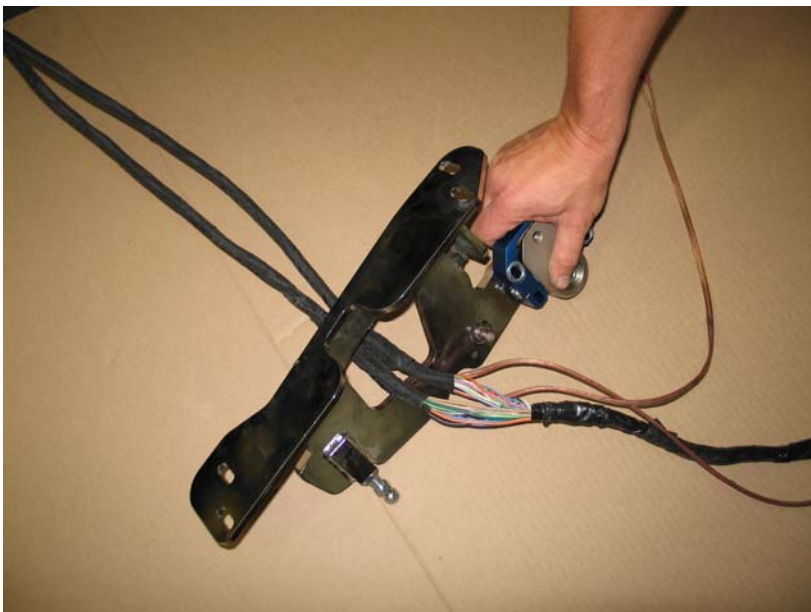


**PHOTO 14**

**STEP 5**      **ROUTING THE WIRE HARNESS**

**IMPORTANT NOTE:**

- 5n.**      Prior to mounting the Swing Arm to the door, the wire harness needs to be fed through the Swing Arm, as shown in **(Photos 26a)**

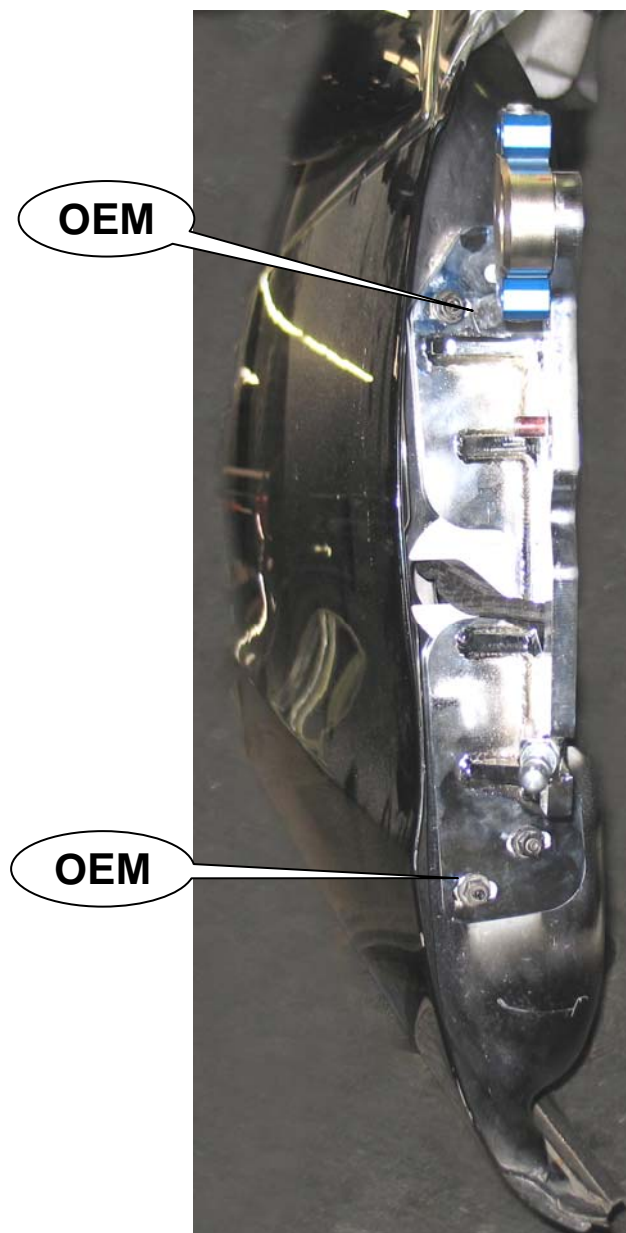


**PHOTO 26a**



## STEP 6 MOUNTING THE LSD SWING ARM

- 6a.** Using the existing O.E.M. nuts, mount the LSD swing arm on the door, matching up each respective mount hole. Two mount holes at the top and two at the bottom (**Photo 15**). Locate the mounting nuts at the center of their respective mount holes.
- 6b.** Using a wrench, torque the bolts to 20ft-lb.



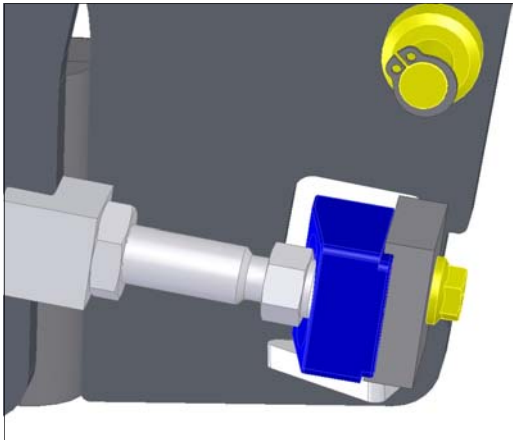
**PHOTO 15**



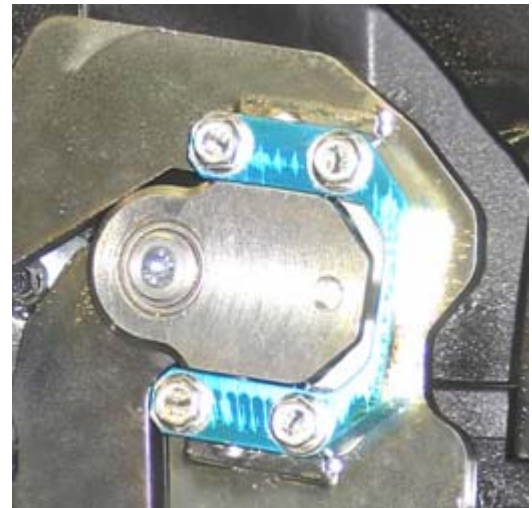


**STEP 7**      **MOUNTING THE DOOR TO THE A-FRAME**    **IMPORTANT NOTE: THIS STEP SHOULD BE DONE WITHOUT THE GAS SPRING INSTALLED**

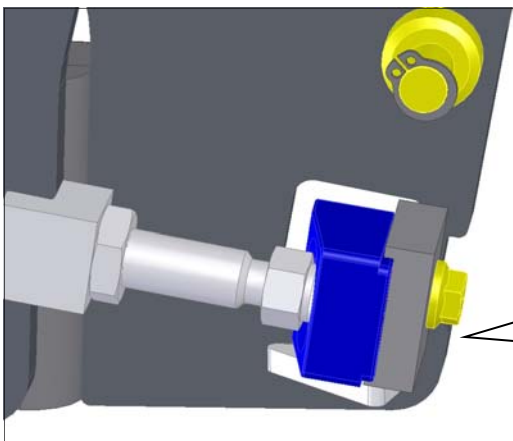
- 7a.    Place the door back on the vehicle and close the door completely.
- 7a.    Install the MAGICSTIK into position (**Photo 16**) Initially, this is done for mounting purposes only, using the MAGICSTIK as a guide.
- 7b.    Lifting the door into position, guide the MAGICSTIK into its mating block (**Photo 17**), manually holding the door there, as close to the closed position as possible.
- 7c.    Attach the swing arm to the ground plate with the four (4) kit supplied bolts and adjust the door via moving the swing arm adjustable plate connection mount with the horizontal door gap adjuster in the right or left direction until the gap measurement is like the original (**Photo 18**).



**PHOTO 16**



**PHOTO 18**



**PHOTO 17**

**IMPORTANT NOTE:**  
*Torque mounting bolt to 10ft-lb.*

**INITIAL ADJUSTMENT OF THE DOOR**

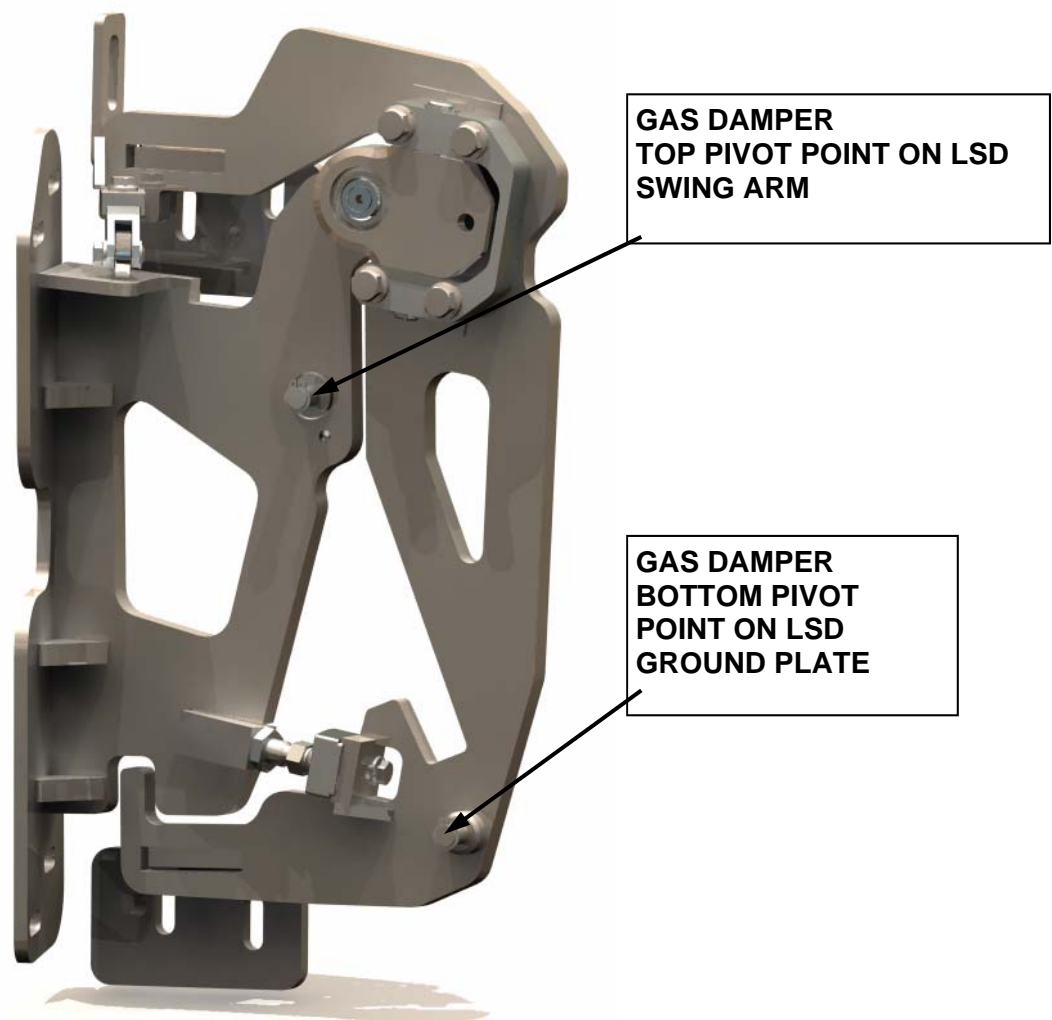
- 7d.    **Adjustment height** of the door is by moving the Ground plate (**F**) vertically. Make sure the mounting hardware is loosened to be able to do this.
- 7e.    **Adjustment depth** of the door is by moving the door horizontal. Make sure the mounting hardware is loosened to be able to do this.



**STEP 8**      **MOUNTING THE GAS DAMPER** (after correct gap distance has been established)

**IMPORTANT NOTE:**

- **PRIOR TO MOUNTING THE GAS DAMPER AT ITS RESPECTIVE MOUNTING POINTS, WE HIGHLY RECOMMEND USING AN ANTI-RUST LUBRICANT, WIPING DOWN THE MOUNT POINTS TO PREVENT RUSTING.**
- **KEEPING THE MOUNTING POINTS LUBRICATED, ENHANCES THE LONGEVITY OF THE LSD DOOR SYSTEM TO WORKING PROPERLY**

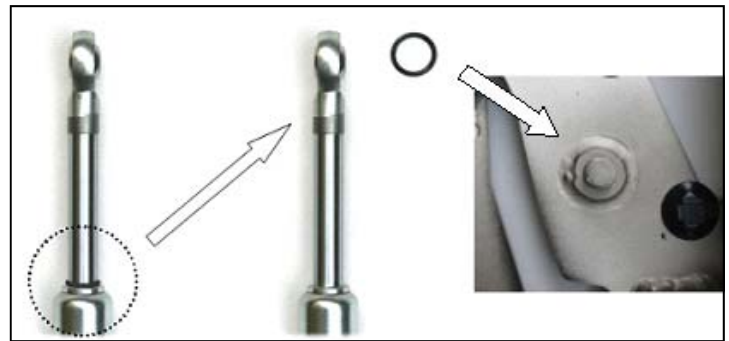


**STEP 8**      **MOUNTING THE GAS DAMPER** (after correct gap distance has been established)

- 8a. Hang (mount) the gas damper on the mount point of the swing arm (**Photo 22**). Secure it with the kit supplied security ring, by using needle-nose pliers.
- 8b. **NOTE:** Use care when installing the security ring.
- 8c. The rubber o-ring, located on top of the gas damper has to be moved (**Photo 23**) between the Ground plate and the top of the ball joint of the gas damper (**Photo 24**).

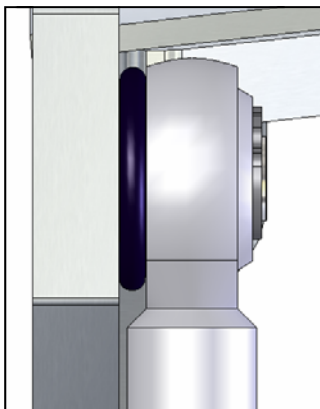


**PHOTO 22**



**PHOTO 23**

- 8d. Carefully pivot the door up and hang in the gas damper at the fitting point of the Ground plate. Secure it with the kit supplied security ring (**Photo 25**)



**PHOTO 24**



**PHOTO 25**



**DANGER:** The gas damper is under extreme pressure! Please make sure the security rings are installed correctly and are snapped in their respective guides.





## STEP 9 FINAL DOOR ADJUSTMENT... IF REQUIRED

- 9a. With the gas spring installed
- 9b. At this point of the installation, open and close the door slowly. Check and see if the Magic Stick aligns correctly to the Magic Stick receptacle. If adjustment is necessary, adjust the Magic Stick receptacle to align with the Magic Stick (**Photo 20**). In some instances the Magic Stick receptacle has maxed out on adjustment. If this scenario arises, spacers must be used to align both the Magic Stick and Magic Stick receptacle.

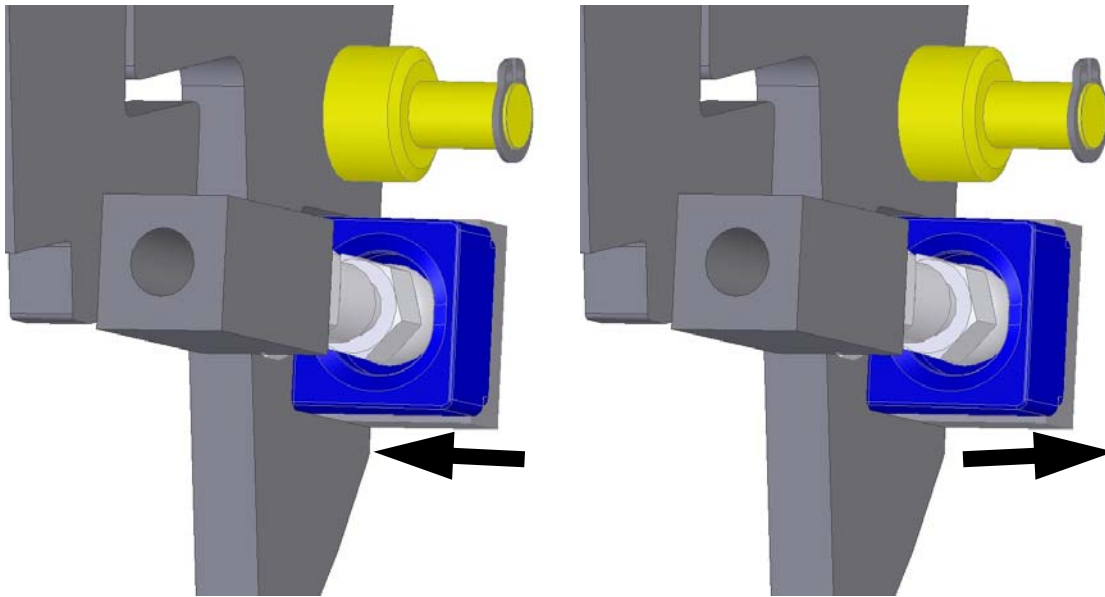


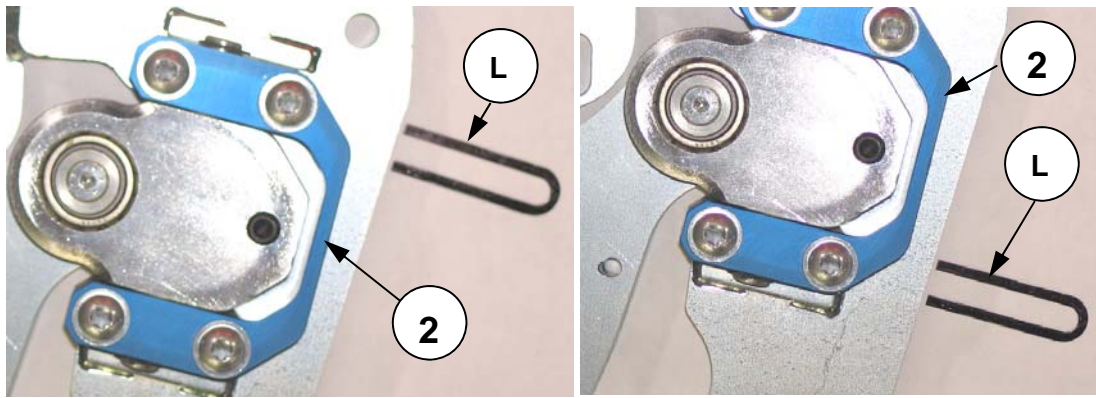
PHOTO 20

- 9c. If the Magic Stick (**Photo 20**) (lower adjustment screw) is not in the correct position when the door is closed, a spacer (**Photo 21**) has to be installed under the M.A.R.A as shown in the pictures.

**IF REQUIRED**

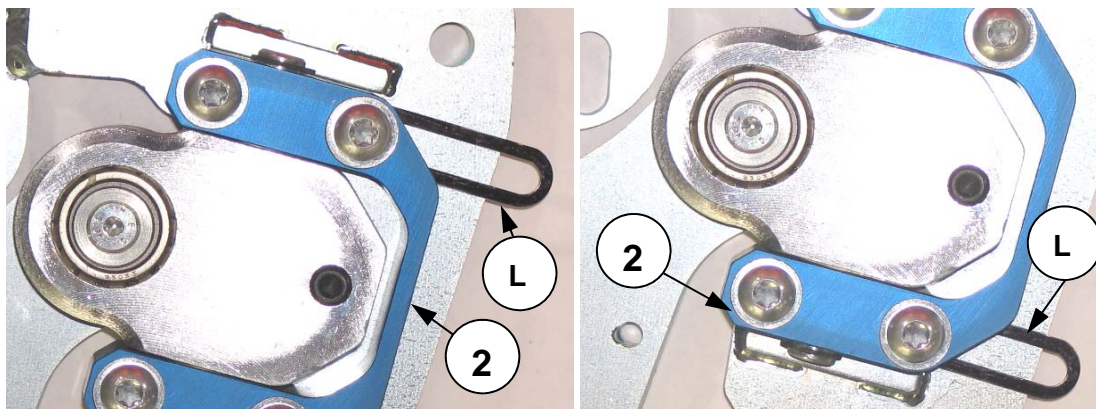
- 9d. With the gas spring uninstalled.
- 9e. If spacer (s) installation is needed, install one at a time, starting at the top, (**Photo 21**) working your way to the bottom, to see if that particular spacer aligns the door correctly.

Begin at the top mounts, **STEP 1A** to **STEP 1B**, etc, etc.



**STEP 1A - TOP**

**STEP 2A - BOTTOM**



**STEP 1B - TOP**

**STEP 2B - BOTTOM**

**PHOTO 21**

Re install gas spring and check door alignment again. Repeat if necessary.



## STEP 10 ROUTING THE WIRE HARNESS

- 10a.** Pivot the door carefully up and make sure there is sufficient clearance on the fender, A-pillar and hood. If necessary, adjust the Ground plate or the LSD swing arm again.
- 10b.** Lay the wire harness on and attach it to the marked points shown (**Photo 26**). Secure the wire harness with the kit supplied cable ties.

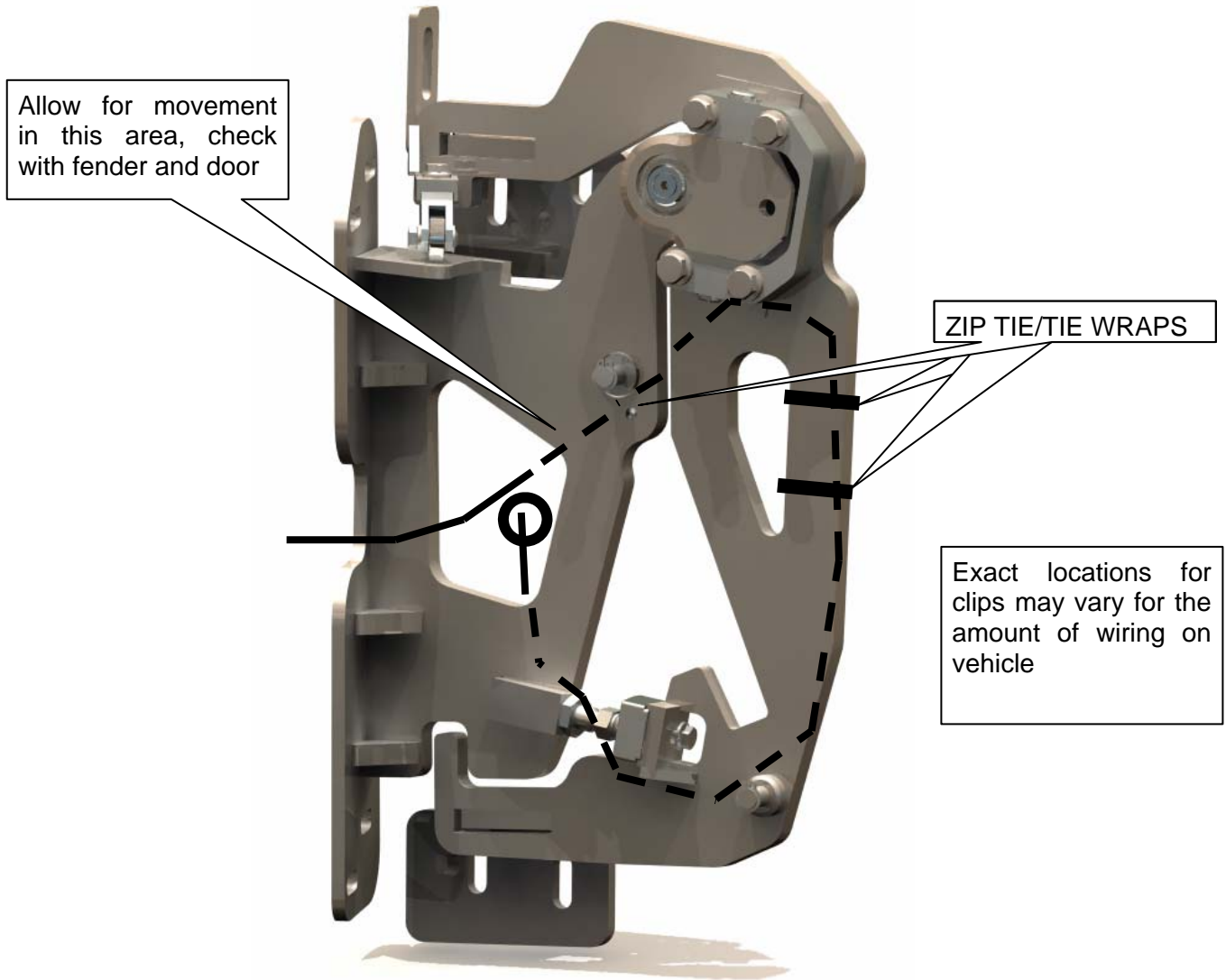


PHOTO 26





## 11. ROLLER ADJUSTMENT

**NOTE:** The door needs to be in the closed position for this adjustment to be properly done.

- 11a. Please adjust the slide roller so the LSD swing arm has the initial contact and pre-load while opening and closing of the door. (**Photo 27**).
- 11b. To get the adjustment of the slide roller, we have designed an horizontal and vertical adjustment to the slide roller mount.

### IMPORTANT NOTE:

- 11c. There may be at times when you have exhausted the travel on the adjustment and still have not located the slide roller where its should be located.
- 11d. To rectify this problem, included in the hardware kit, are spacer shims, that, if needed would be located (**Photo 28**) between the slide roller mount and the main mount. This would move the slide roller down slightly.

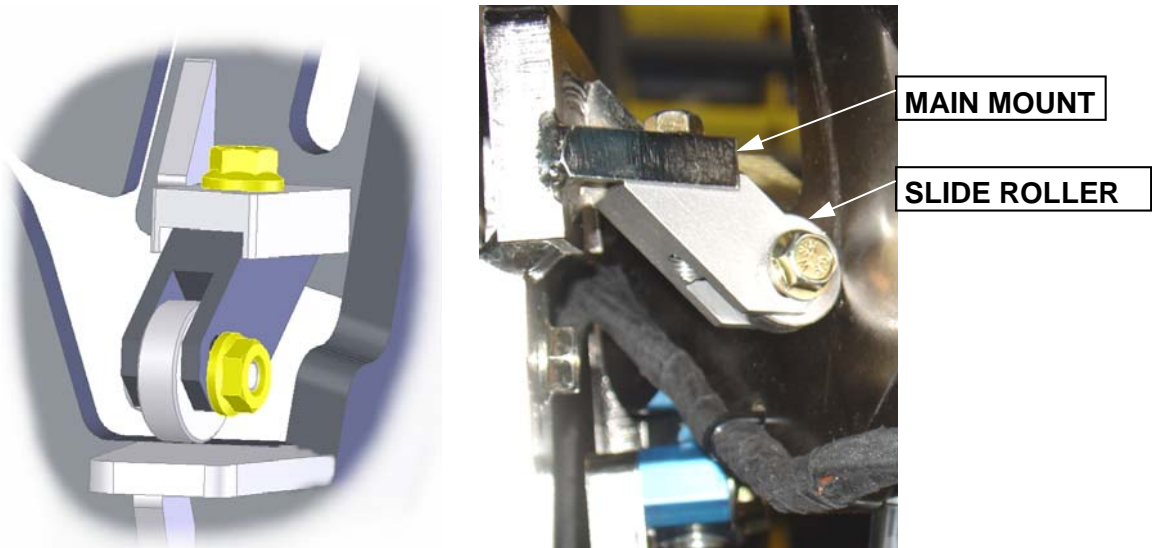


PHOTO 27



PHOTO 28

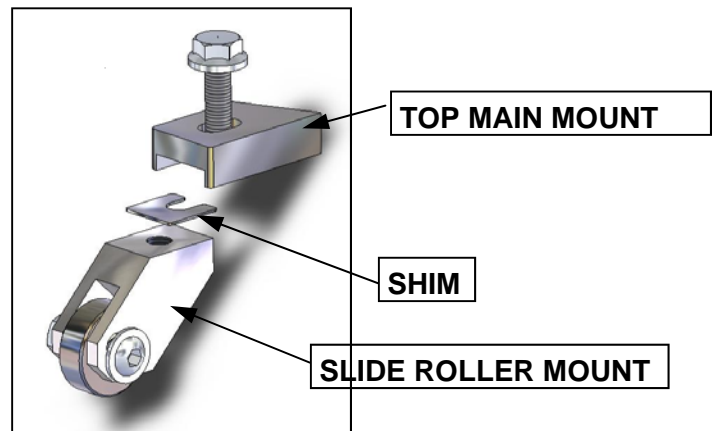


PHOTO 28a



## **COMMON TROUBLESHOOTING QUESTIONS and ANSWERS**

### **Q1: WHY DOES THE BOTTOM OF THE DOOR NOT SIT FLUSH, AT THE FRONT OR REAR?:**

**A1:** LSD door hinges are engineered and designed to compensate for this issue. They are designed to be installed in the center location of all mounting slots. Some vehicles are different however; adjusting the location of the swing arm mounts on the door will fix this problem. Mounting the swing arm towards the interior of the door, top or bottom will move the door out; mounting the swing arm towards the exterior of the door will move the door in. In some cases, the mounting will be slightly different between top and bottom mounts.

### **Q2: WHY DO THE DOORS “SPRING” A-JAR WHEN OPENING THE DOOR?:**

**A2:** LSD door hinges are engineered and designed to compensate for this issue. It is common on vehicles that the left and the right sides are not quite the same. When a door “springs” open there is a misalignment between the swing arm and the ground plate. This can be remedied by increasing the distance of the “third” point on the ground plate. The “third” point is usually located towards the front of the vehicle. Increasing the distance and angle of the ground plate to the vehicle will release any pressure and/or contact between the swing arm and the ground plate.

### **Q3: WHY DOES THE DOOR HITS/RUBS AGAINST THE FENDER WHEN OPENING?:**

**A3:** LSD door hinges are engineered and designed to compensate for this issue. Attaching the LSD hinge in the center location of the slots and adjusting the magic stick such that the tuff lock is centered is the optimum desired installation. Making minor adjustments to the “MARA”/“C” profile, the “third” point, and/or the “Magic stick” should alleviate this problem.

### **Q4: WHY IS THE WIRING HARNESS TOO LARGE FOR THE ROUTE SHOWN IN THE INSTRUCTIONS?:**

**A4:** LSD door hinges are engineered and designed to compensate for this issue. LSD wiring kits are designed for the MAXIMUM wires installed on vehicles. If additional wires are added or modified that are larger than original, wiring routing might have to be modified. Vehicle owners are responsible for this modified routing.

### **Q5: WHY DOESN'T THE GAS SPRING HOLD THE DOOR UP?:**

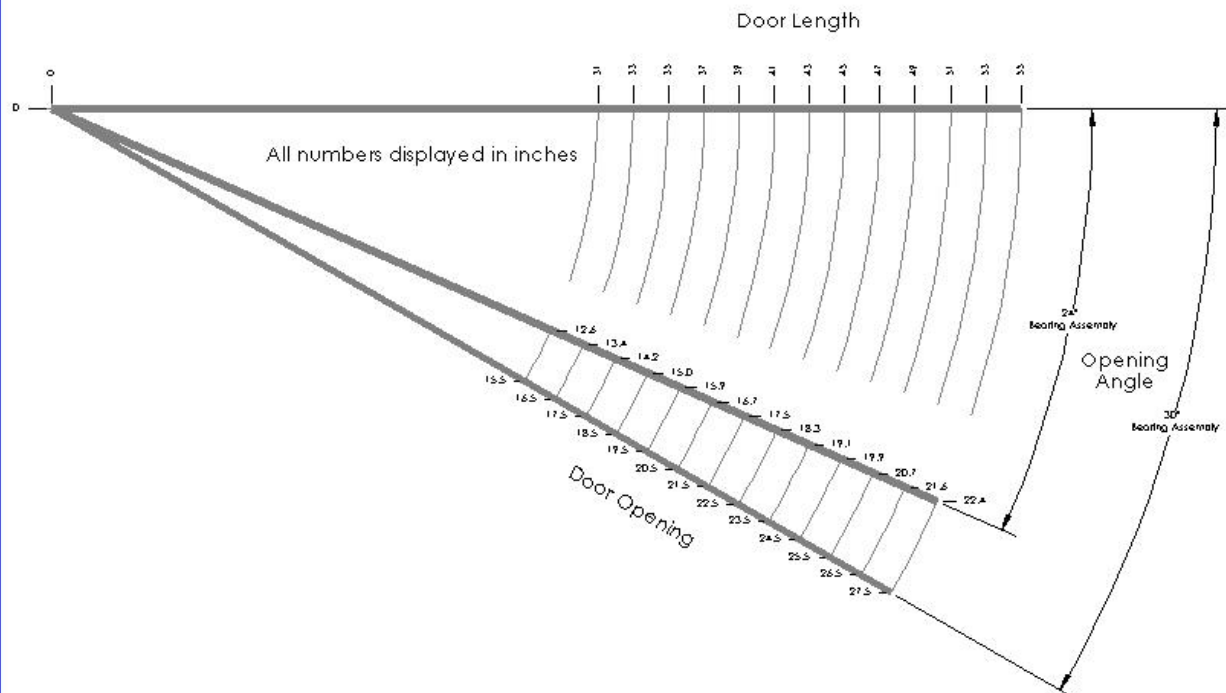
**A5:** LSD door hinges are engineered and designed to compensate for original door weight, i.e. speakers and electronics. **NOTE:** As temperature fluctuates, the gas pressure in each shock increases or decreases. Example; in the heat, the gas pressure will expand, in the cold; it has a tendency to contract. Any modifications to the speakers or electronics may require a larger gas spring. Vehicle owners are required to purchase these larger gas springs from their local dealer. If you have not modified your door, your gas spring may be faulty. Vehicle owners are required to contact their local dealer for replacement(s).



LSD Door opening chart for 24 and 30 degree bearing assemblies.

NOTE: Depending on how the angle adjustment screw is set on the bearing assembly dimensions can vary up to 2 inches.

To convert from millimeters to inches divide mm by 25.4 and inches to millimeters multiply by 25.4







METRIC TO INCH CONVERSION TABLE

mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
0.01	4E-04	0.41	0.016	0.81	0.032	21	0.827	61	2.402
0.02	8E-04	0.42	0.017	0.82	0.032	22	0.866	62	2.441
0.01	0.001	0.43	0.017	0.83	0.033	23	0.906	63	2.48
,04	0.002	0.44	0.017	0.84	0.033	24	0.945	64	2.52
0.05	0.002	0.45	0.018	0.85	0.033	25	0.984	65	2.559
,06	0.002	0.46	0.018	0.86	0.034	26	1.024	66	2.598
0.07	0.003	0.47	0.019	0.87	0.034	27	1.063	67	2.638
,08	0.003	0.48	0.019	0.88	0.035	28	1.102	68	2.677
,09	0.004	0.49	0.019	0.89	0.035	29	1.142	69	2.717
0.1	0.004	0.5	0.02	0.9	0.035	30	1.181	70	2.756
0.11	0.004	0.51	0.02	0.91	0.036	31	1.22	71	2.795
0.12	0.005	0.52	0.02	0.92	0.036	32	1.26	72	2.835
0.13	0.005	0.53	0.021	0.93	0.037	33	1.299	73	2.874
0.14	0.006	0.54	0.021	0.94	0.037	34	1.339	74	2.913
0.15	0.006	0.55	0.022	0.95	0.037	35	1.378	75	2.953
0.16	0.006	0.56	0.022	0.96	0.038	36	1.417	76	2.992
0.17	0.007	0.57	0.022	0.97	0.038	37	1.457	77	3.031
0.18	0.007	0.58	0.023	0.98	0.039	38	1.496	78	3.071
0.19	0.007	0.59	0.023	0.99	0.039	39	1.535	79	3.11
0.2	0.008	0.6	0.024	1	0.039	40	1.575	80	3.15
0.21	0.008	0.61	0.024	1	0.039	41	1.614	81	3.189
0.22	0.009	0.62	0.024	2	0.079	42	1.654	82	3.228
0.23	0.009	0.63	0.025	3	0.118	43	1.693	83	3.268
0.24	0.009	0.64	0.025	4	0.157	44	1.732	84	3.307
0.25	0.01	0.65	0.026	5	0.197	45	1.772	85	3.346
0.26	0.01	0.66	0.026	6	0.236	46	1.811	86	3.386
0.27	0.011	0.67	0.026	7	0.276	47	1.85	87	3.425
0.28	0.011	0.68	0.027	8	0.315	48	1.89	88	3.465
0.29	0.011	0.69	0.027	9	0.354	49	1.929	89	3.504
0.3	0.012	0.7	0.028	10	0.394	50	1.969	90	3.543
0.31	0.012	0.71	0.028	11	0.433	51	2.008	91	3.583
0.32	0.013	0.72	0.028	12	0.472	52	2.047	92	3.622
0.33	0.013	0.73	0.029	13	0.512	53	2.087	93	3.661
0.34	0.013	0.74	0.029	14	0.551	54	2.126	94	3.701
0.35	0.014	0.75	0.03	15	0.591	55	2.165	95	3.74
0.36	0.014	0.76	0.03	16	0.63	56	2.205	96	3.78
0.37	0.015	0.77	0.03	17	0.669	57	2.244	97	3.819
0.38	0.015	0.78	0.031	18	0.709	58	2.283	98	3.858
0.39	0.015	0.79	0.031	19	0.748	59	2.323	99	3.898
0.4	0.016	0.8	0.032	20	0.787	60	2.362	100	3.937









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