

2000-2006 BMW E46 Convertible
Main Lift Hydraulic Cylinder Removal

Created by taylor192 of E46Fanatics.com



Introduction

This is the first convertible I have owned, and the first hydraulic system I have worked on. When I learned my convertible top was not working I thought I'd have to take it to a specialist. The convertible top at first seems daunting, especially as the mention of hydraulics is enough for most to shy away from DIY. Since I am a weekend warrior comfortable with most DIYs I thought I'd at least investigate first. I found the hydraulic system is simple and straight forward. Most of the hydraulic system is visible and can be easily worked on. No special tools are required.

The best thing to do is familiarize yourself with the top. Read the [Service Manuals](#) and/or poke around the top with a flashlight. Manipulate the top manually (read your Owner's Manual for details of manual operation) into various positions and note where the components are and how they interact. Pull back the headliner or fabric top to see more detail. Inspect the storage area with the lid and rear window raised. ...

The most common failure on the E46 convertible top is that the hydraulic cylinders leak. The OEM seals are made of a material that decays over time:



Thankfully Top Hydraulics is now a sponsor and offers a service to rebuild these hydraulic cylinders for a fraction of the cost of new OEM parts using materials that should, as Klaus says, "outlast your vehicle"!



Top Hydraulics also makes new hydraulic lines and rebuilds the hydraulic pump if your issue is not a leaking hydraulic cylinder.

I'm hoping this DIY guide will convince more e46 owners that they can service their convertible. A shop is going to replace failed OEM parts with expensive new OEM parts that will fail again. DIY allows using upgraded parts from Top Hydraulics for a fraction of the cost of new OEM parts. Win, win!

I'm going to cover the [Storage Lid Cylinders](#), [Main Lift Cylinders Part 1](#) and [Part 2](#), and [Line #23](#) raichean tackled the [BowTension Cylinders](#).

I performed all repairs with the help of the [Service Manuals](#).

I performed all repairs using the services of [Top Hydraulics](#)

Main Lift Hydraulic Cylinder Removal

Took ~3 hours to remove the cylinders, longer to install since I ran into trouble installing the gas strut.

Tools required:



Note: some tools not pictured. Consult the list below:

- a strong friend (or 2 strong friends if you're not comfortable lifting 150lbs)
- silver sharpie (any hardware store has them)
- ratchet plus short and long extensions
 - 7, 8, 10 and 13mm sockets
 - 3mm and 5mm allen key
- small allen key (I have a set, forget the size)
- small flat head screw driver
- mini pry bar
- cutters
- rags
- tape
- towel



Step 1: Remove the rear seat.

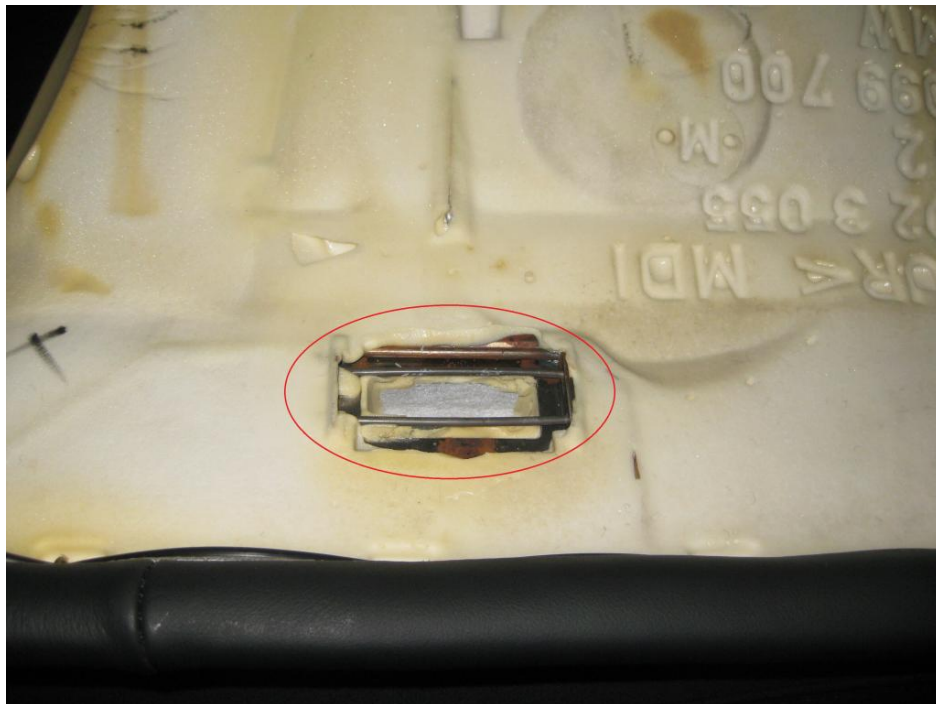
- Open the pass through hole.



- Unclip the rear seat from the pass through hole.



- Pull the rear seat bottom up and forward to remove. It is only held in with 2 clips.



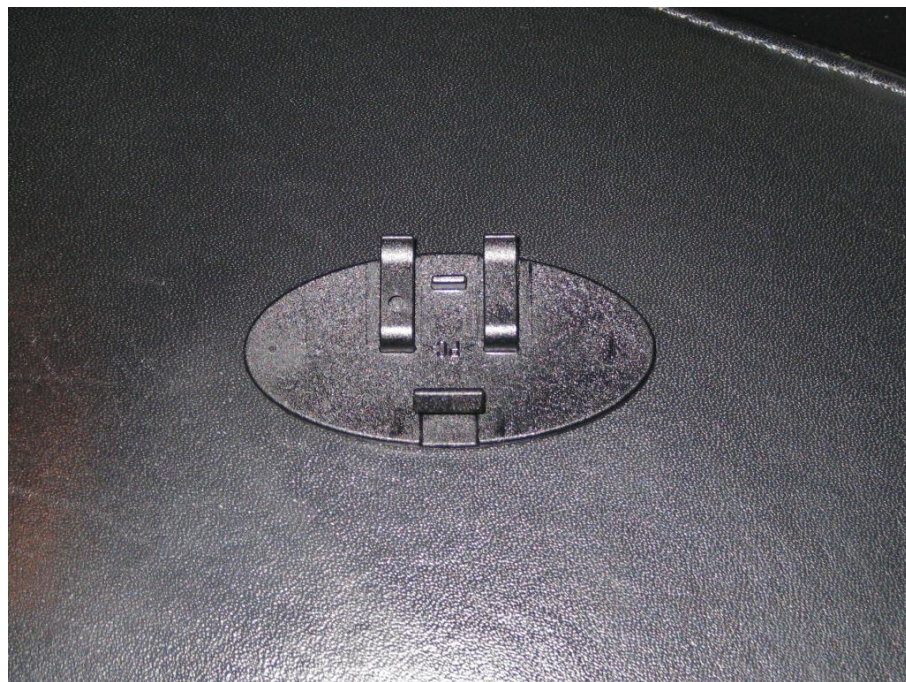
- Unbolt the bottom of the rear seat back



- Lift the rear headrests, move the seat belts out of the way, then pull the rear seat back up to remove.

Step 2: Lower the convertible top manually.

- Expose the manual latch control by removing this cover. The cover has clips on top or bottom, so if it won't come off one direction, try the other.





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- Retrieve the allen key from the motor under the rear seat bottom:



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- Ensure the storage compartment lid is unlocked. Open the motor cover, if the cables are not in this position push the button and use the allen key to turn the motor to the correct position.





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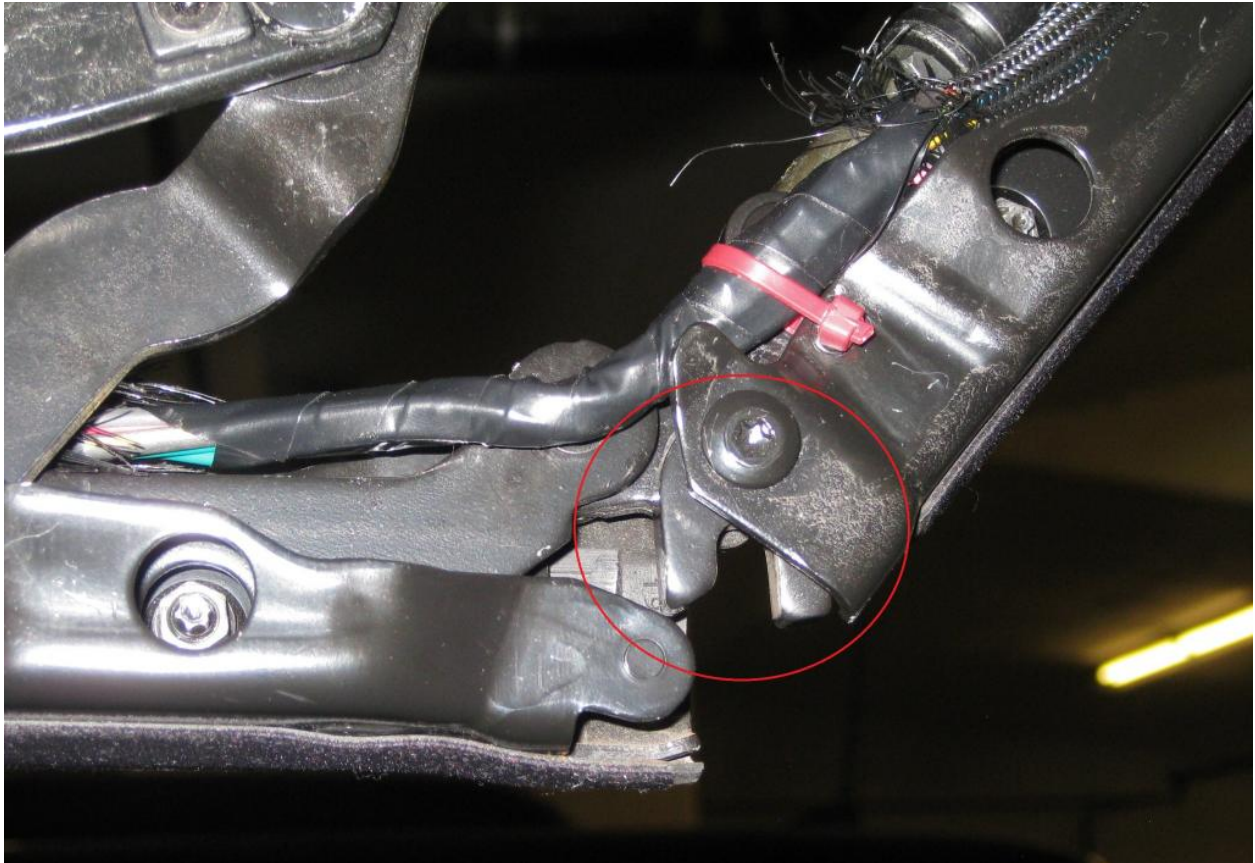
- Manually unlatch the top. Keep turning while gently pushing up until the first bend moves freely. The first bend has a latch as well.

Note: You can see my wire harness has been repaired at the bend.





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- Fold the top into the storage area.

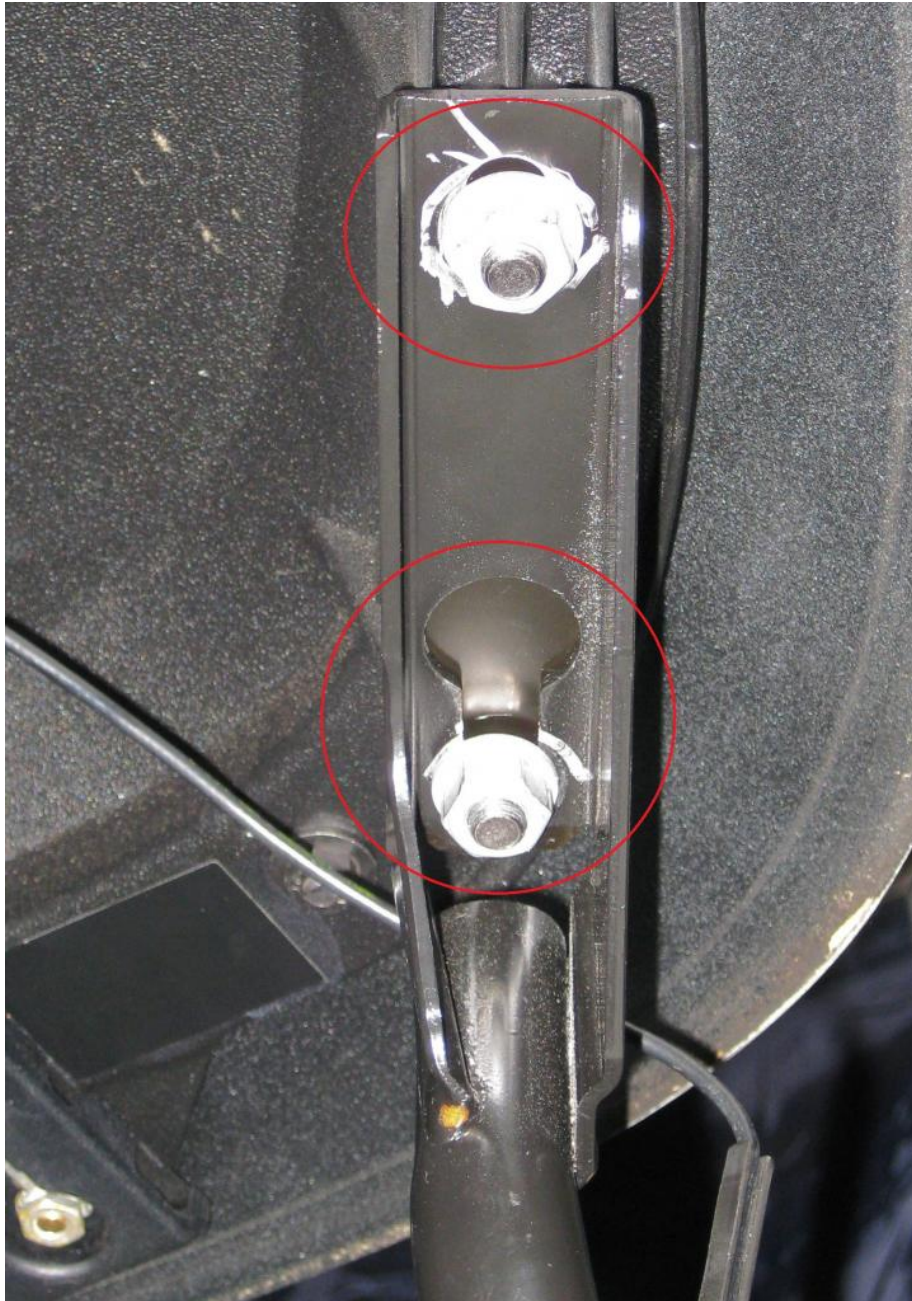
Step 3: Remove the storage compartment lid.

- Disconnect this. I assume its some sort of radio antenna.





- Mark the position of the 13mm nuts and protect the trunk with a towel (incase you drop the lid).
remove the top nut and loosen the lower nut. Lift the storage compartment lid and the lower nut should
slide out through the hole.



- Store it somewhere safe (unlike what I did, and now I have to have it repaired 🤦)



Step 4: Remove the rear interior panels.

- What the panels look like together:



- What the rear interior looks like with everything removed. Mounting points and connections for panels circled in red.



- Remove the centre (I'm Canadian, its centre not center!) panel by removing the 2 8mm bolts and pulling the bottom clip out. The top is held in with tabs. Disconnect the speaker.

Note: Buy a few panel clips, you'll break a few removing them. Pn: 51 41 8 224 781





- Disconnect the movable panel on the top panel by reaching under and disconnecting the spring.



- Remove the top panel by removing the 3 7mm bolts and pulling up.



- Remove the lower panel on the drivers side (passenger side can be left installed, and yes I know the picture is of the passenger side! :p) by pulling the 2 clips out. The top should be free after the 7mm bolts were removed.





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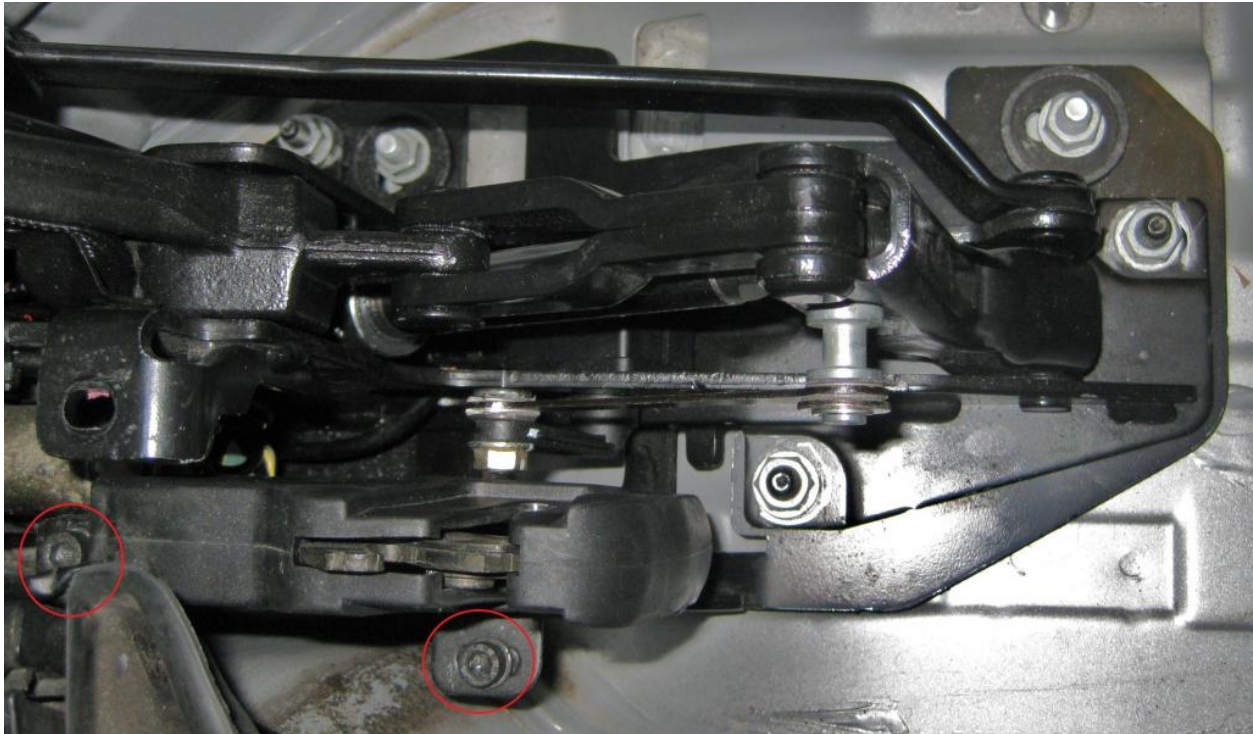
Step 5: Remove the hardtop install kit, if installed.

- I do not have this kit installed. Here are the locations of the mounting points:

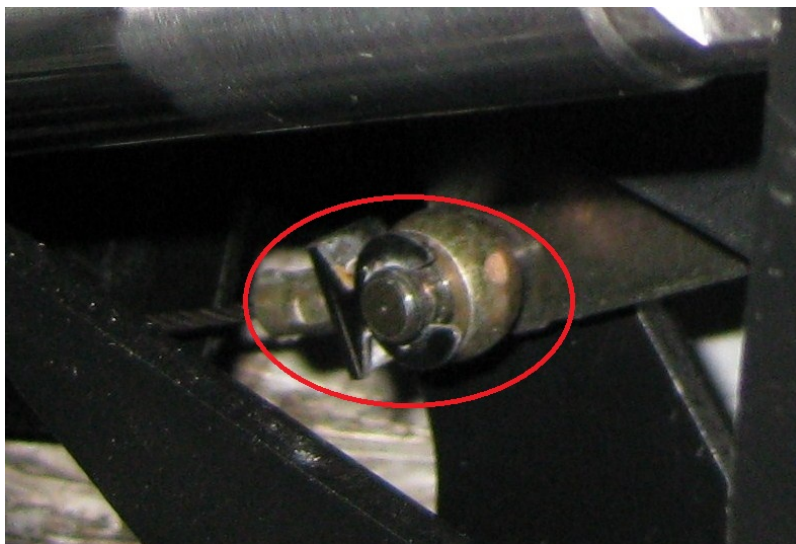


Step 6: Remove the storage compartment lid latches.

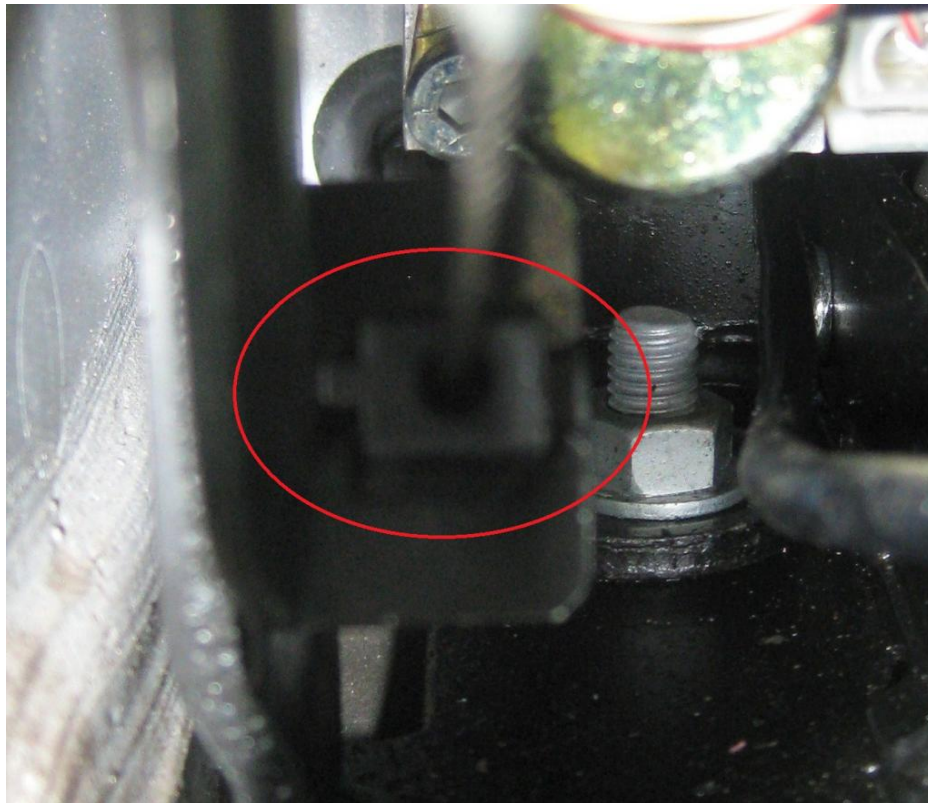
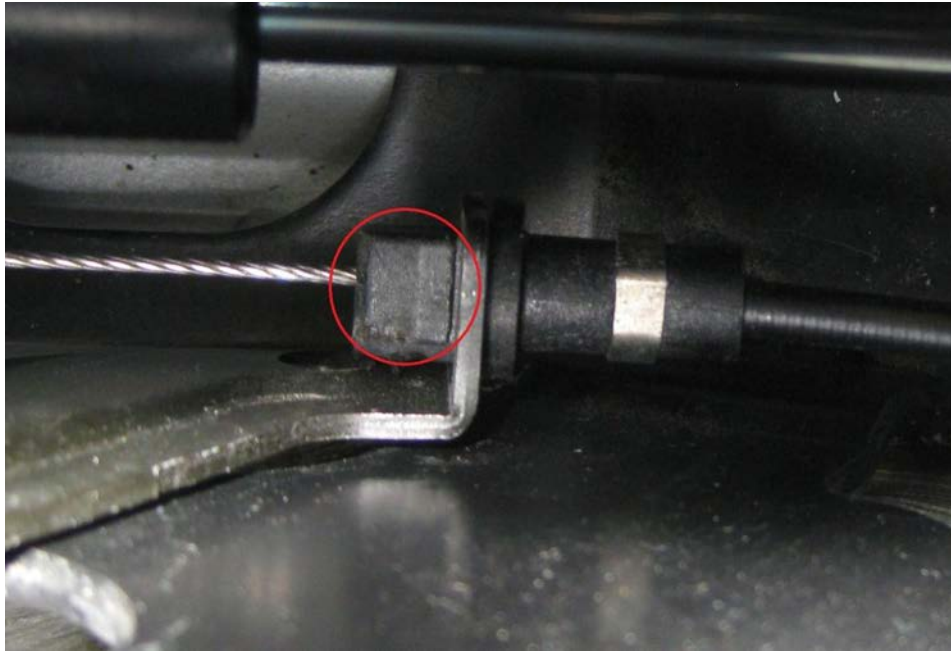
- Mark the location of the 5mm allen key bolts then remove them. Be careful not to drop them, or invest in a bendable magnet retrieval tool.



- Unclip the cable. The clip is attached to the cable. Pull it back, its not going to go flying.



- Unclip the cable holder. Press the 2 tabs on either side to release. Sorry for the terrible pics!



- Unclip the cable and pull it into the interior. It needs to be out of the way to remove the top.



Step 7: Remove the top!

- Pull fuse 35 in the glove box, especially if you plan to drive while waiting to get the cylinders back. It is a big red 50 amp fuse that supplies power to most of the convertible system.
- Disconnect the hydraulic lines and unclip them from the body. They will leak so have rags handy! I wrapped the ends in rags then secured the rags with tape.





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- Disconnect the electrical connections. The CVM (convertible top module) is on the drivers side, thus why the lower interior panel was removed. Push the black lever to disconnect.





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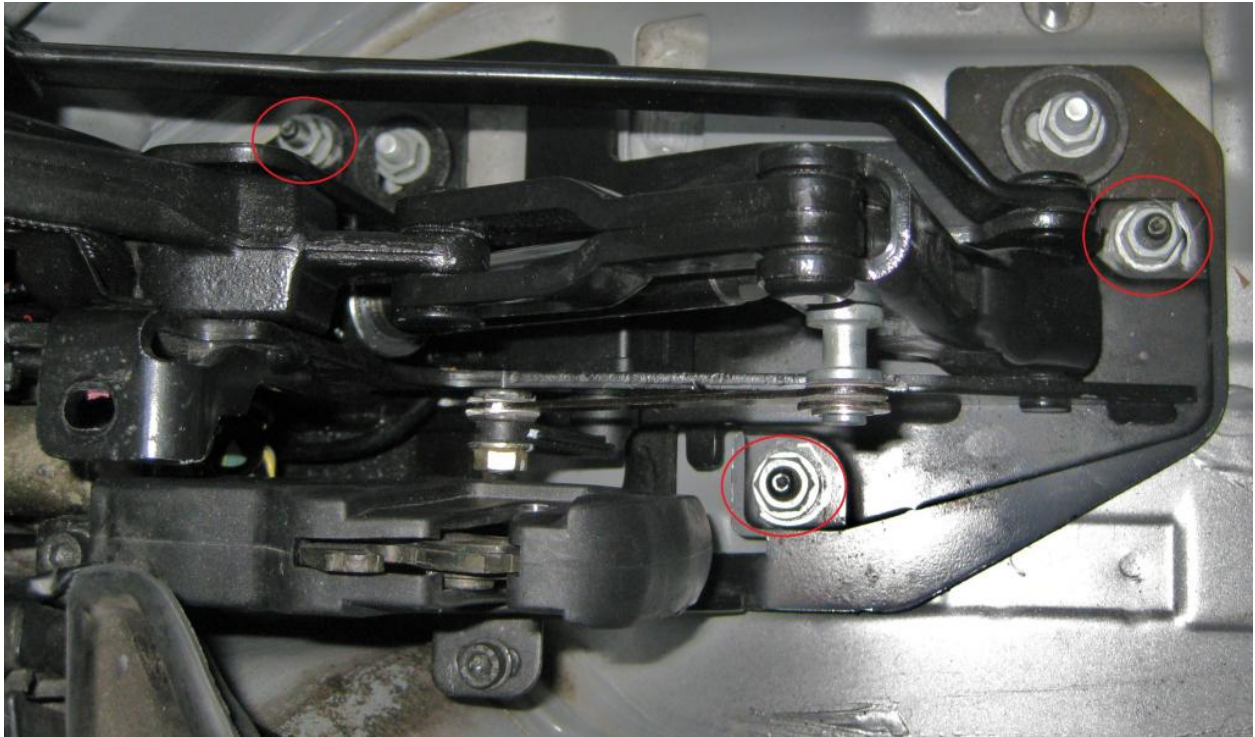
- Remove the 8 13mm nuts. DO NOT REMOVE ANY OTHER NUTS! They are set at the factory!



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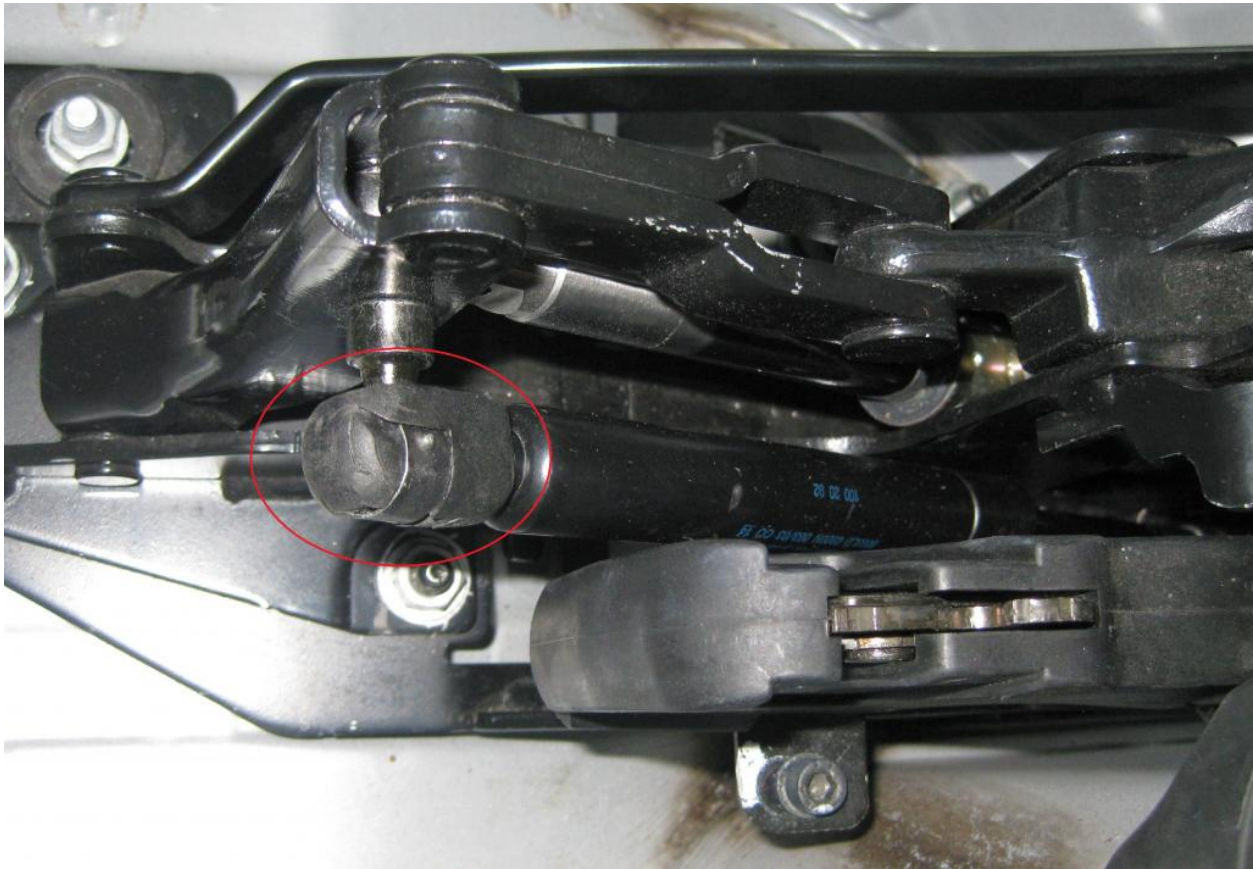


- Lift! Protect the exterior if you're not sure you can handle the weight. This step requires 2 people (at least, a 3rd is handy).

Step 8: Remove the passenger side main lift cylinder

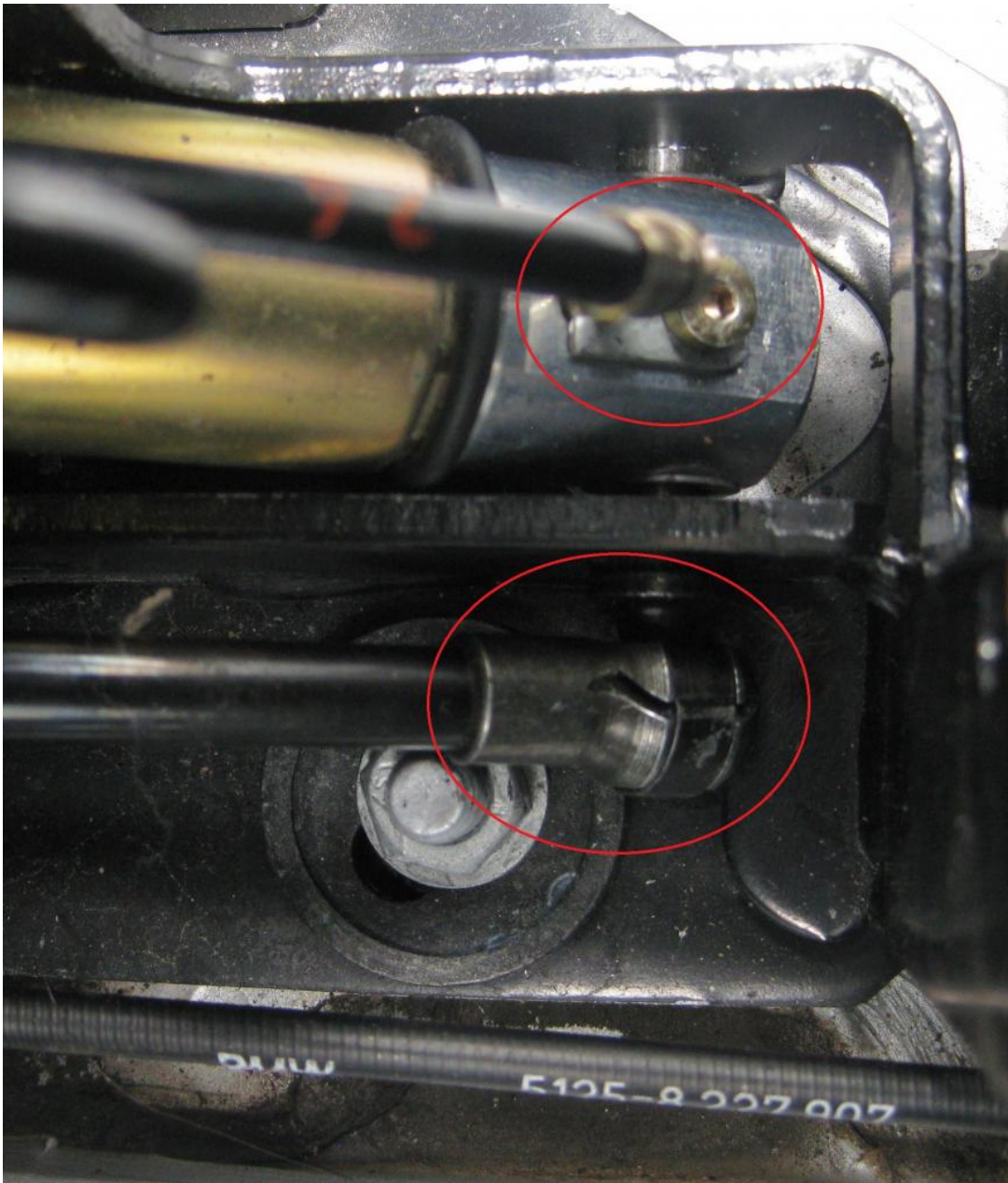
- Remove the gas strut. Slide the retaining clips off.

WARNING: This strut will be under 100s of lbs of pressure, so its best removed with the top extended.





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NOTE: Installing the gas strut is a PITA! Mine was 0.5" too long with the top fully extended. Thus as good Canadians we fashioned a clamping mechanism out of a big-@\$ F-clamp and a drilled out hockey puck.

See this post for details: <http://www.e46fanatics.com/forum/showthread.php?p=127&postcount=12>



- Remove the pins holding the cylinder. Remove the 2 c-clamps holding the pins in. Slide them out and the cylinder will be free.



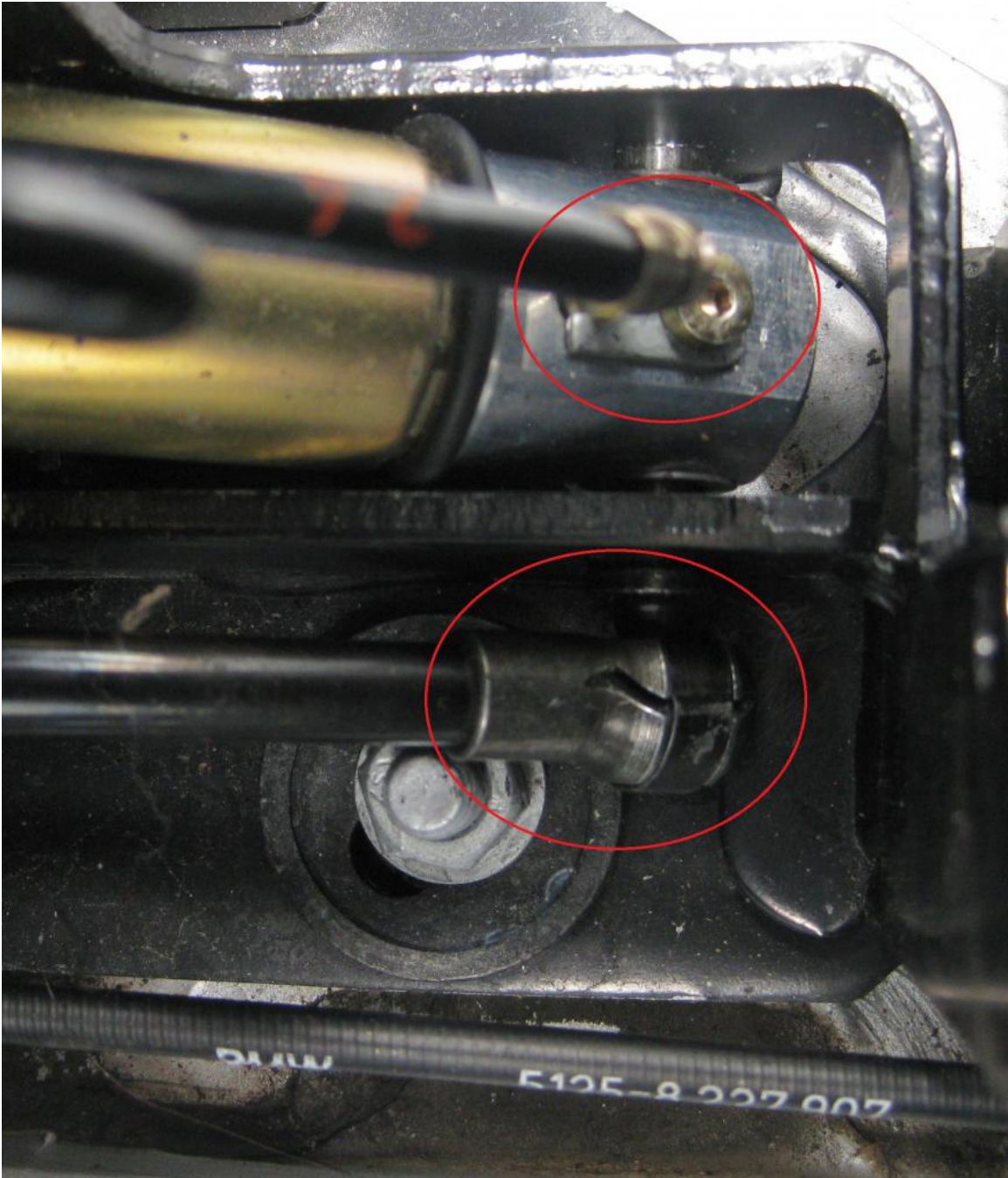


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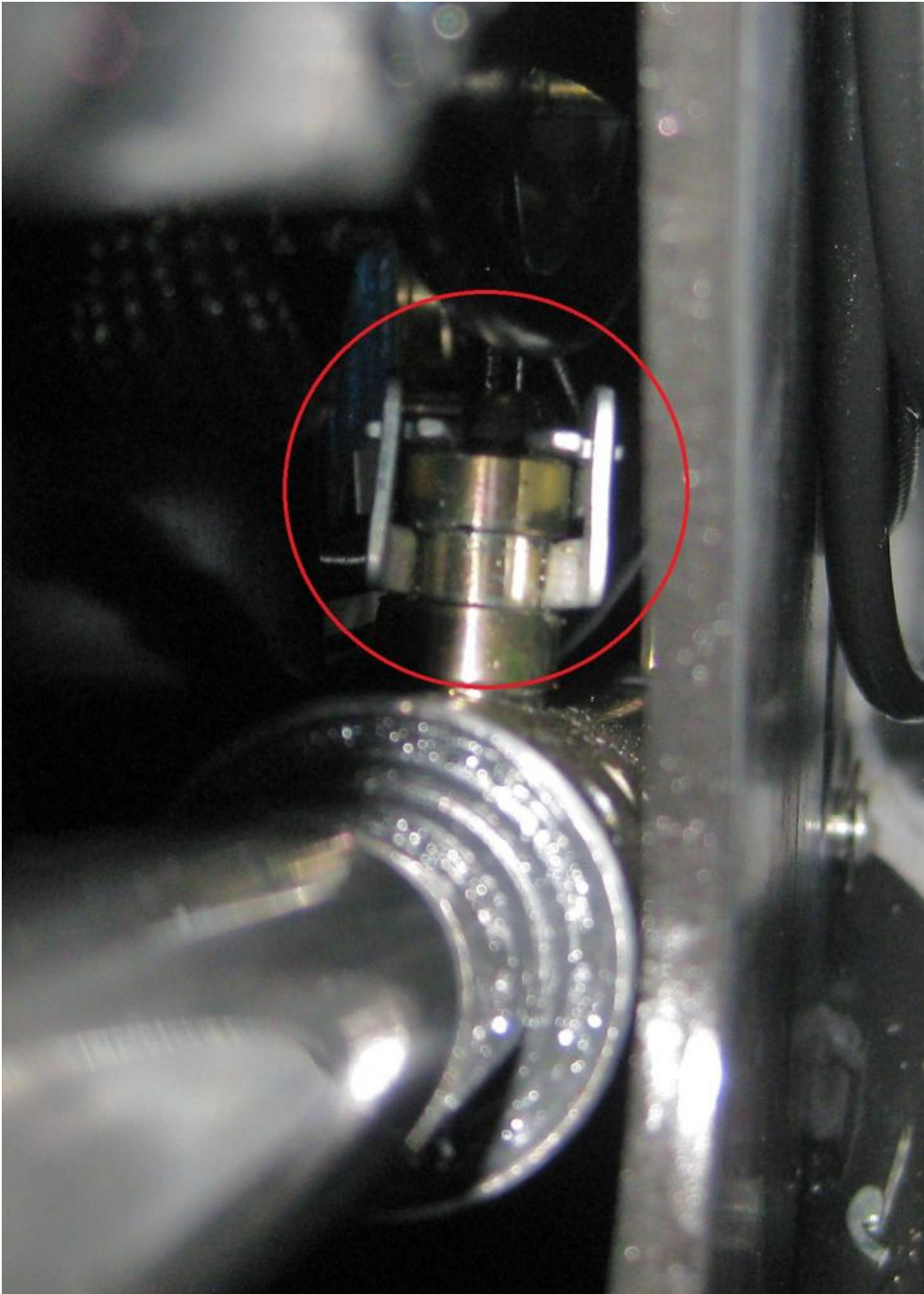
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- Disconnect the hydraulic lines. They will leak so have rags handy! I wrapped the ends in rags then secured the rags with tape. The lower line is held in with a small hex bolt (use the small allen key, someone please update with the size!). The upper line is held in with a clip, push the remove the clip.





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- The cylinder should be free!

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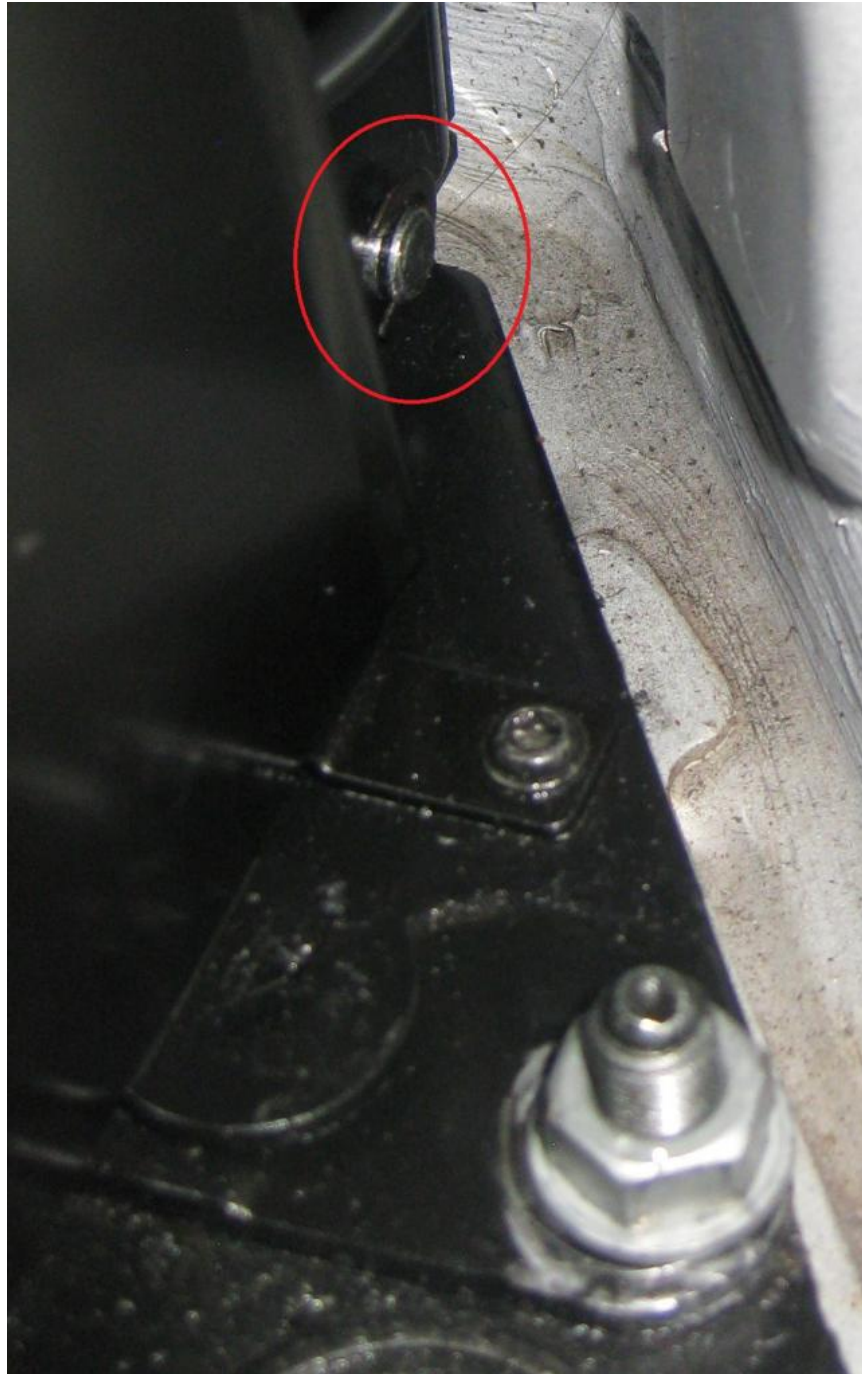
Step 9: Remove the driver side main lift cylinder

- Repeat step 8 on the driver's side. There is no gas strut on the driver side (thankfully!). The valve body need to be unscrewed (3mm hex) to make enough room to work.





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Step 10: Send to Top Hydraulics to be rebuilt!

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