

Convertible Top Hydraulic Cylinder Removal Manual for W124 E-Class Convertibles 1993-1995 Models 300CE (1993) and E320 (1994-1995)



**Written by Samit Ghosh with picture material from “vexed” of
benzworld.org**

Top Hydraulics Inc. is hosting this guide as a courtesy to W124 convertible owners and does not take responsibility for completeness or total accuracy.

If you are noticing hydraulic fluid leaks and you have not replaced any cylinders before, it is likely best to have all of your cylinders upgraded at the same time.

Introduction

Prior to the cylinder removal you must have completed the removal of the rear seat bench and back, and the removal of both interior side trim panels in the rear.

You must also complete the removal of all items in the trunk and the right side cover in the trunk. The left side cover in the trunk can stay, as you can bend it down to allow access to the left tonneau cover lift cylinder.

All panel removal work is described in a separate manual by Top Hydraulics, Inc.

W124 E320 Cabriolet Trunk/Interior Removal



By
Ac "The One" GmbH

DISCLAIMER - THIS IS A GUIDE. FITTED WITH STANDARD OPTIONS. REMOVE THE INTERIOR AND TRUNK LININGS TO AVOID THE CONVERTIBLE TOP HYDRAULIC SYSTEM. USE AT YOUR OWN RISK.

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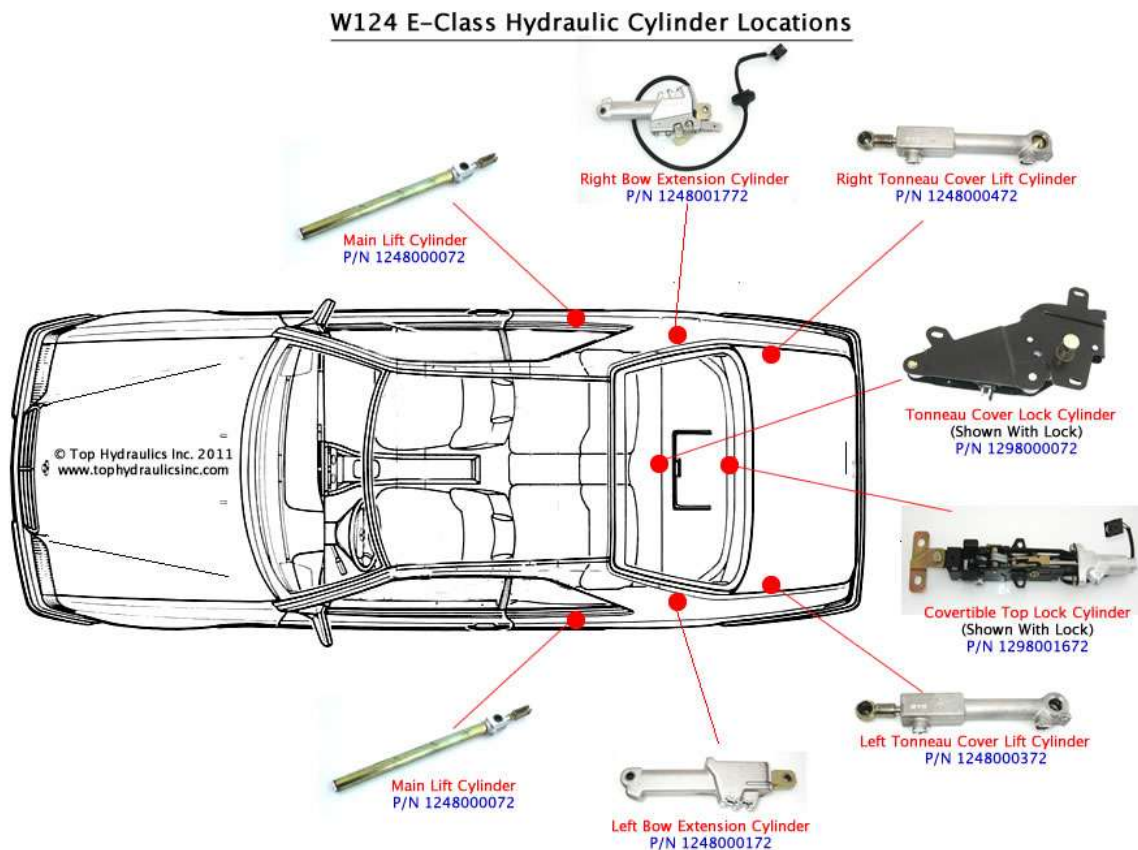
Now on to the Cylinders:

Your E320 has 8 cylinders that you want to remove:

2 main lift cylinders, 2 bow cylinders, 1 tonneau lock cylinder, 1 top lock cylinder and 2 tonneau cover lift cylinders.

This is also the order you should adhere to when removing them. If you want to gain experience with the clips and the whole cylinder concept you can do the tonneau lock cylinder first.

The next picture shows you where the parts are located in the car.



The whole removal process can be completed in approx. 8-10hrs. If you get frustrated take a break, it's not worth messing up the parts. You need only one person for the job if you follow the instructions. All stories of the need to take the top off completely are wrong.

To be smart and to make the job easier you need to have the rear windows working: don't disconnect the battery. However, disconnect the trunk light and keep the doors shut so that the lights in the interior/in the doors don't drain the battery – especially if you let the car sit overnight.

As a rule of thumb to protect your cylinders:

As soon as you have disconnected the top pin of the rod of the main cylinders and the bow cylinders, push the rods all the way in to protect them from damage. I do not recommend working with a rubber hose etc. The same applies for the two tonneau cover lift cylinders. However, here you detach the cylinder mount at the ball joint first, instead of the piston rod mount ball joint.

I found that you need the following tools:

- A large soft buffer, such as gigantic toilet paper package or equivalent (to keep the back of the top and the tonneau cover up and to operate it with one hand while holding the top)
- High quality ratchet, such as Snap-on ratchet #FHFL80, approx. \$130 USD (very exact tool w/o play – worth the money) or equivalent
- T40 Torx that fits your ratchet
- 5mm Allen that fits your ratchet
- 8 mm socket
- 10 mm socket

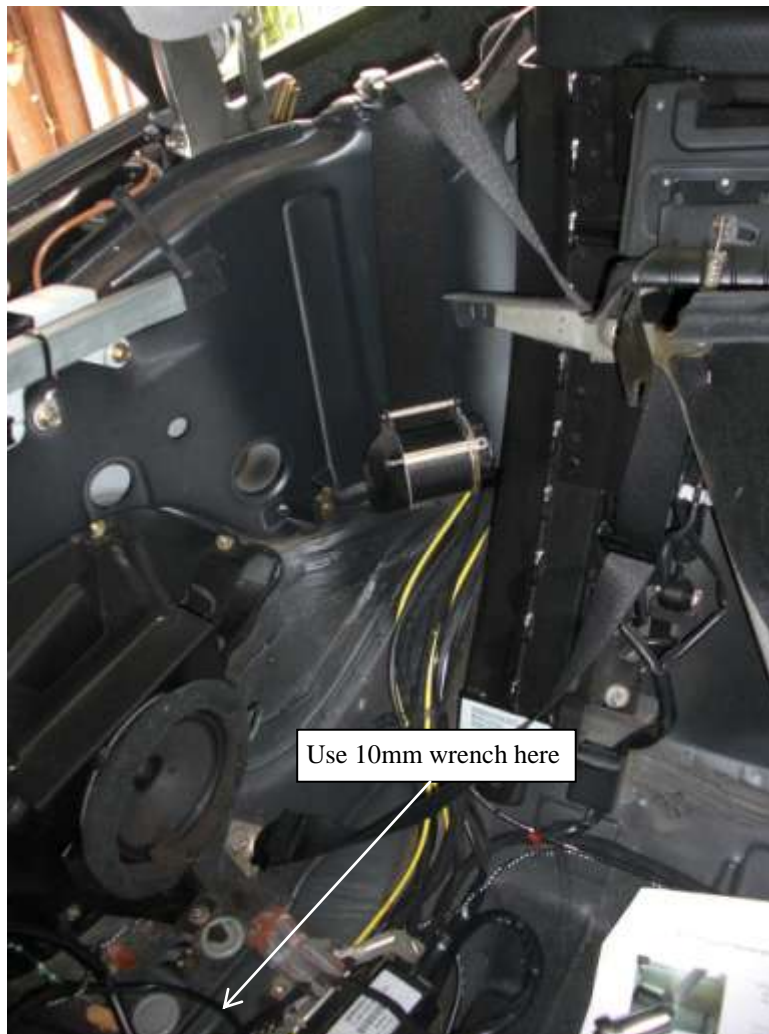
- 17mm socket
- 10 mm wrench (for the bottom screws of the speaker base)
- A small flat screwdriver (the type electricians use)
- Small pliers
- Large flat screwdriver to pry out the rod mounted ball joint of the tonneau cover lift cylinder
- A sharp carpet knife with a long blade
- Masking tape, Ziploc bags and a waterproof permanent marker
- The usual suspects: Phillips screwdriver, ratchet extension, etc.
- 2 quarts of Febi fluid 02615. For example from:
www.autohausaz.com

Work with a magnetic tray as to not lose parts. After you have finished one set of cylinders, collect all parts in a Zip-lock bag and label it before you start the next step. That way you will stay organized.

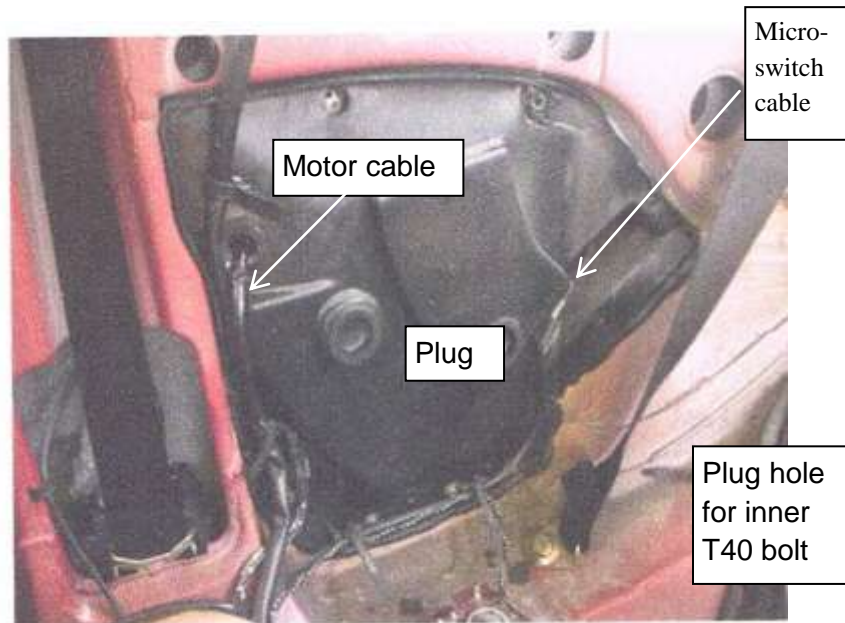
Main Lift Cylinder Removal

The prep work for this job is to remove the black plastic cover.

Start with removing the speaker from the black panel, the 2 top screws are easy to access, for the third bottom screw you need the 10mm wrench. Remove all remaining screws of the panel.



After the speaker is off, you will see this:



Cut off all the cable binders, disconnect the microswitch and disconnect the window motor.

Push the rubber grommet with the microswitch inside the panel, do the same for the motor cable.

The panel has a strong adhesive that serves as a seal. It is very tough to get the panel off . By just pulling it you could break it.

Take the plug in the middle out, pull the panel with one finger in the plug hole so that you can insert a screwdriver in the gap at the top of the panel to start peeling it off. Once the panel has come off a bit, cut the adhesive with a carpet knife. Work your way carefully around the whole panel.

The adhesive itself is not so sticky, it is more like old chewing gum. In contact with leaking hydraulic fluid it turns into a nasty sticky smear that you can't get off. This happens usually at the bottom of the panel. Cover it with paper towel.

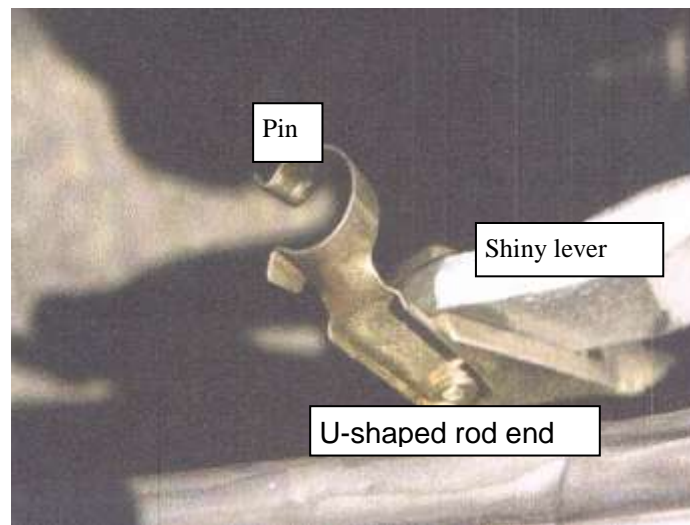
This is what it looks like without the panel:



Lower the windows and put the toilet paper bag in the tonneau area to secure the bow portion of the top if not done already.



Disconnect the pin at the top of the cylinder rod. The left side is easy, the right side is a little tricky. Do not remove the U-shaped rod end from the shiny lever yet.



Now go and stand outside the car, grab the main cylinder with one arm through the window in the area of the removed panel to hold the cylinder in place, while disconnecting the rod from the shiny lever with the other hand and immediately pushing it all the way down into the cylinder (use a small towel or a glove – it hurts). Be careful not to let go since the cylinder is heavier at the lower end and it would swing. The still extended rod would slam into metal parts, potentially scratching the surface.

The cylinder is held in place with two T40 screws/bolts that work like two pins from left and right so it can swing.

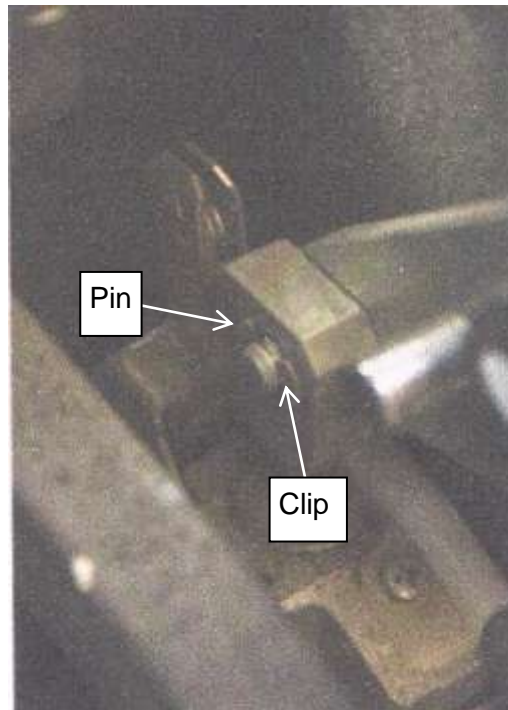
You start with the inner bolt. Use the T40 with an extension and the ratchet and loosen the bolts through the plug-hole indicated in the panel picture above. Do not remove the bolt completely; just loosen it.

Raise the window. Loosen the outer bolt with the T40 directly attached to the ratchet from the area accessible from the tonneau inside the fender. Take this bolt out completely.

Go back inside and take the inner bolt out completely. Then pull the cylinder gently out of the panel opening, and label the lines. Disconnect the lines using the small pliers. Do not lose the clamps!

Bow Lift Cylinder Removal

The hardest part is to remove the pin and the clip.



This job can be simple if you know how it is done. The main trick is to lower the roof completely into the tonneau area.

Clear the toilet paper bag. The tonneau cover lid should stay open by itself since you have not yet started to remove the two tonneau cover lift cylinders in the trunk.

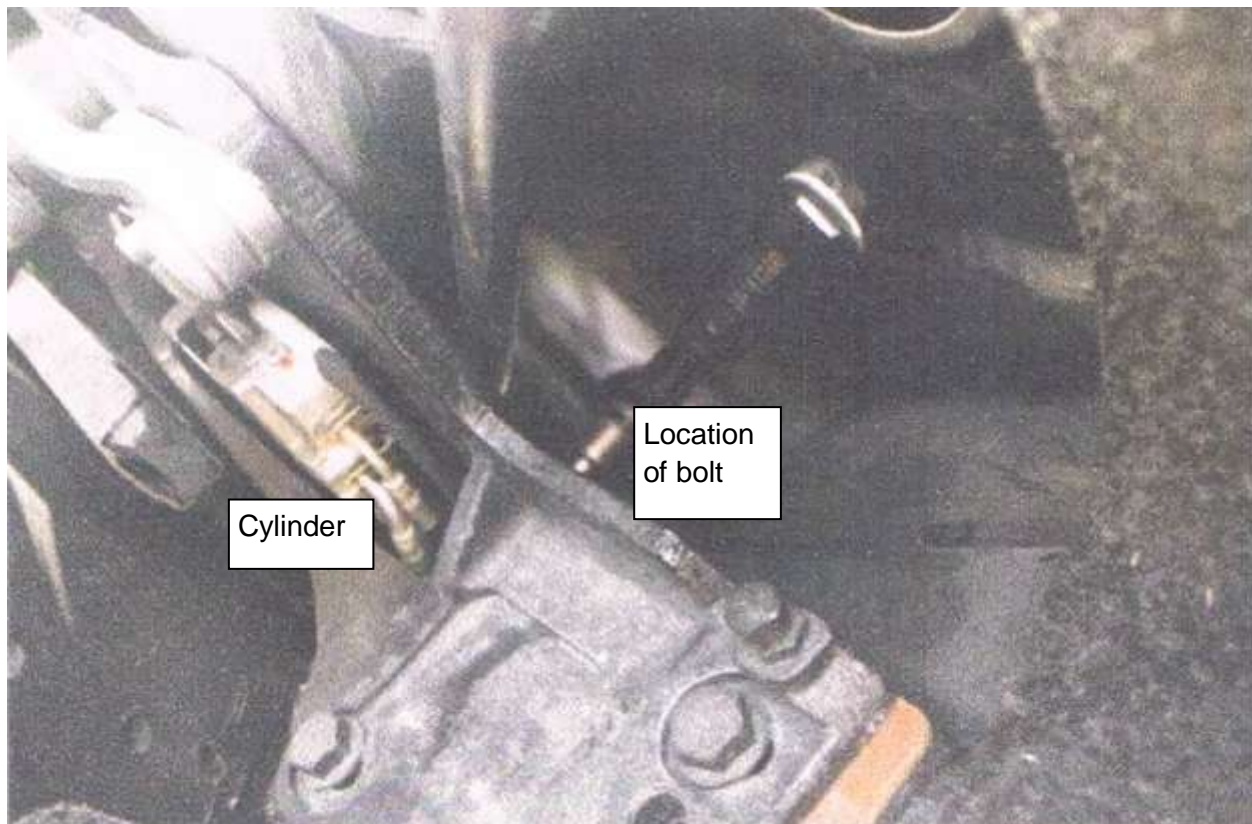
Move the top by hand into the tonneau area. Be careful with the inner lining of the top. It can get stuck at the sharp metal edges since you removed some plastic trim in the tonneau area.

Once fully down, the bow cylinder is completely extended and easily accessible. Put a rag around the area to catch any parts.

Take the clip off with a small screwdriver and pull the pin out. Push the cylinder rod in completely.

Now lift the top out again, secure it again with the toilet paper bag and raise the rear windows.

The cylinder is held in place with a bolt that needs a 5mm Allen socket that you use directly on your ratchet. It is accessible through the tonneau area inside the fender in the same area where you removed the outer bolt of the main cylinder.



The bolt is pretty long, so you need to work your ratchet quite a while. Once you have the bolt out, pull the cylinder out upwards, label the lines, disconnect and remove the cylinder. The passenger side has the disconnected microswitch cable attached to it, which needs to be pulled up first before removing the cylinder.

This is what driver side (no microswitch) and passenger side cylinders look like:

Driver Side:



Passenger Side:



You can send the passenger side cylinder to Top Hydraulics, Inc. with microswitch attached as shown in the above picture.

Tonneau Lock Cylinder Removal

This is the easiest of all cylinders. Take the cover off with a 5mm Allen socket – two screws.



Fold the lining back and remove the lock that holds the cylinder, it is attached with 3 screws. Use a 10mm socket.



Unplug the switch, label the lines and disconnect. There is no need to take the cylinder out of the lock if you intend to send it to Top Hydraulics, Inc.

This is what the cylinder mounted inside the lock looks like:



NOTE: The lock may be either black or galvanized.

Convertible Top Rear Lock Cylinder Removal (AKA Bow Lock)

This is the second easiest of all cylinders. Take the cover off with a 10mm socket.



Place rags around it to catch leaking fluid. Once the cover is removed you will see the cylinder in the lock:



Disconnect the electrical line and remove the lock by removing the four 10mm screws. Label the lines and disconnect.

This is what the cylinder mounted inside the lock looks like:



There is no need to separate the lock and the hydraulic cylinder when sending to Top Hydraulics, Inc.

Tonneau Cover Lift Cylinder Removal

These cylinders should come out last. They are easily accessible, but the main struggle is to pop them off of the small ball joint at the end of the piston rod.

Lower the tonneau cover by hand, lower the rear part of the convertible top and let it rest on a folded towel in order to have easy access when lifting it up.



Inside the trunk, both cylinders look identical:



The clip at the piston rod comes off easily by hand. The golden clip at the cylinder comes off best using a small electrician style flat screwdriver.



Then label and disconnect the lines.

Pop the cylinder ball joint off first and push the cylinder all the way in.

Using a large flat head screwdriver you can pry the piston rod off the ball joint using a little force. Make sure the piston is fully inside the cylinder in order to not bend or damage it.

In the end, this is what you get



After a successful day, this is what you should see:



Shipping to Top Hydraulics Inc.:

Cycle the hydraulic fluid out of the cylinder(s) by holding the item wrapped in a shop cloth or paper towels and manually pumping the cylinder rod a few times to eject the oil out of the cylinder(s). Then place the cylinder(s) in plastic bags and wrap well. Make sure to buffer against voids in your mailing box to prevent the cylinder(s) from rattling around or puncturing the package. Credit Card Payment should be made in advance of sending your package to Top Hydraulics (see our checkout page, "Option 1"). Kindly enclose a copy of your online payment receipt with your cylinder(s) and include your daytime phone number and shipping address (if different than the billing address).

If paying via check or money order, we recommend you put the payment inside of a plastic or zip-lock bag and add a note indicating your phone number and shipping address. We advise that you tape your package very well to prevent damage. You may ship to Top Hydraulics using any carrier you wish, but it should be noted that all cylinders fit inside a USPS Medium Flat Rate Box. Flat Rate Box USPS Priority Mail Flat Rate packages will usually arrive within 3 business days.