

Jaguar XJ-S Bonnet lock maintenance

The bonnet locking systems is covered in the ROM beginning at 76.16.20. However, general maintenance and adjustments are only vaguely described. Here, I will try to be more specific on the procedures for adjustment and general maintenance.

Description

The rather complex lock system on the XJ-S has been reported to be similar to that used on some BMWs. The system has left and right lock assemblies mounted on the bulkhead. There are corresponding striker pins mounted on the bonnet. A cable, passing through a guide tube fastened to the bulkhead, connects the left and right lock assemblies so they can pull both sides of the bonnet down together. There is another, shorter cable that drops down into the driver's compartment from the left lock assembly. This cable connects to a lock trigger/release handle mounted on the side of the driver's foot well.

Interestingly, the locking arrangement is the same regardless of which side the driver sits on. That is, the trigger/release is always on the left side of the vehicle.

Operation

Proper positioning of the bonnet is important before operation of the trigger/release. The bonnet can tend to twist a bit, resulting in the striker pins coming to rest off center of the lock cam surface. If the trigger/release handle is forced closed from this starting point, the cable to the trigger/release can easily be broken at the point where it connects to the lock assembly. To avoid this, try to hold the bonnet at the center as you lower it onto the locks.

Routine Maintenance

If the bonnet is locking down evenly on both sides and operating smoothly, the only maintenance is lubricating the locks. Roberto Schafer recommends as follows:

"As far as grease goes. I do what I did with BMW's. I put on lithium grease, the light viscosity white stuff. If you put it on relatively thick, the dust and dirt that build up on the surface can be easily wiped off at the next oil change and fresh grease put on. If you put the grease on too thin, the dirt works its way into the gaps and is hard to get out (which I am not going to bother with on a ½ hour oil change!). No grease leads to jammed latches. You can buy the white lithium grease in a spray can. You then can set a rag under the latch, douse the latch with grease and that kind of removes the crud as it drips off. Wipe off the excess and away you go! "

Adjustment

If the bonnet is not pulling down evenly on both sides, adjustment of the cables is called for. We describe here a full adjustment procedure, although this may not be necessary in all cases. You may want to try starting at some mid-way point if your problems are not severe. But if things don't go well, it's probably best to go back and apply the full procedure.

Unfortunately, adjustment usually means replacement of the cables. This is because the cable set bolts at the left side lock and at the trigger/release usually damages the cable to the point where

adjustment is difficult or impossible. In fact, this cable damage makes adjustment a frustrating experience, since if you are not lucky enough to get it right the first time, it will be more difficult the next. A self-fabricated add-on adjuster is described below to address this problem, although successful adjustment without it is possible.

You should begin your adjustment procedure by inspection of the striker pins. They sometimes have been damaged or bent due to dropping of the bonnet caused by failed gas struts. If they are not straight, take them off, put them in a vice and pound them straight. Lay them side by side to be both sides are the same.

While the striker pins are off, you can check the adjustment of the rubber nubs bolted to the top of the bulkhead at each side. Lower the bonnet onto the nubs and note the level of the bonnet relative to the cowl. Adjust the height on the nubs as necessary for a smooth joint.

For reasons explained later, bolt only the left side striker pin back on to the bonnet, trying to align it as it was before.

Next, fully loosen the cable set bolts at the left side lock and at the trigger/release. If this does not allow easy sliding of the cables through their pivot blocks, the cables should be replaced. Otherwise, your adjustment procedure will be more difficult.

The cable to the trigger/release (the short cable) is removed or installed from the top. It passes through a hole in tab inside the lock assembly, down through a hole in the angled section of the bulkhead, then through the hole in the pivot block with set bolt. To remove it, grasp the end from inside the lock assembly with needle nosed pliers and pull.

The cable connecting the two lock assemblies (the long cable) is removed and installed from the right-side of the car. It passes through a hole in a tab at the bottom of the right-side lock assembly, then through guide tube attached to the bulkhead, on its way a pivot block at the top of the left side lock assembly. The cable may also pass through lengths of small nylon tubing between each lock assembly and the guide tubing. These are apparently to protect the cable from chafing on the bulkhead. Sometimes these are absent, probably due to improper reassembling in earlier repairs. After loosening the set bolt at the left side pivot block, the cable can be extracted with pliers, pulling from the right end. A severely damaged cable end may require a strong pull.

Note: You can probably cut off the bad end of this cable to fashion a short cable.

After reattachment of the lock assemblies, you are ready to replace the cables and adjust them. Here, it is important to realize that since the right-side lock is actuated through the left side lock, the latter must be adjusted first. Moreover, this is most easily done if the right-side lock were inactive while the left side is adjusted. For this reason, it is recommended that the right-side striker pin be removed until the left side lock is adjusted

To install the short cable, drop it through the tab in the left side lock, and through the bulkhead. If a nylon tube is available (1/8" ID), it can be slid up over the cable from below to protect the cable from chafing against the bulkhead. However, this has been omitted from many cars. The cable then passes through the pivot block on the trigger/release.

To adjust the left side lock, first prop the lock so it is partially closed. Push down on the moving part (the "hook") and insert a 3/8" thick temporary spacer, such as a block of wood or folded cardboard, between the lock and the sidewall. This will give a good starting point for the adjustment. Then from inside the car push the trigger/release to full open, take the slack out of the cable by gently pulling on it with pliers, and tighten the set bolt. The set must be really tight, since otherwise it will slip when you try to check the adjustment. Unfortunately, this damages the cable, making your second try harder, but short of the adjuster described below, not much can be done. Now, remove the temporary spacer and gently pull the trigger/release with the bonnet up. If it will not easily move to the full closed position, loosen the set bolt and grip the cable with pliers above the pivot block and pull the cable back through a bit. Tighten the set and check it again. If it closes well, look at the lock and see if it is pulled into the closed position, as indicated by not traveling when pushed on from the top. If it looks OK, release the trigger/release, lower the bonnet, and then gently pull the trigger/release closed. Check that the bonnet is resting on the nubs by pressing on the left side corner of bonnet. If it travels, either the nub is too low, or the lock assembly is too high. Go back and check the adjustment of these items.

Now you can install the long cable and adjust the right lock. If it is a new cable, you should be able to slide it easily through the protective nylon tubing pieces and guide tube. If the end of the cable has been damaged, however, this can be a difficult task. Then pass it through the pivot block, but do not tighten the set bolt.

To adjust the long cable, prop the right-side lock partially closed with a 3/8" spacer as was done before. Then take the slack out of the cable by gently pulling on it with pliers, and securely tighten the set bolt. Now, remove the temporary spacer and gently pull the trigger/release with the bonnet up. If it will not easily move to the fully closed position, loosen the set bolt and grip the long cable with pliers inboard of the pivot block and pull the cable back through a bit. Tighten the set and check it again. If it closes well, look at the lock and see if it is pulled into the closed position, as indicated by not traveling when pushed on from the top. If it looks OK, release the trigger/release, lower the bonnet, and then gently pull the trigger/release closed. Check that the bonnet is resting on the nubs by pressing on the right-side corner of bonnet. If it travels, either the nub is too low, or the lock assembly is too high. Go back and check the adjustment of these items.

This completes the adjustment.

Custom-built Cable Adjuster

To make bonnet adjustment easier, you can make a better cable adjuster from hardware store items, with some drilling and tapping. Two are required: one for the short cable and one for the long. For each you will need:

- One 1/4" 24 hex head bolt, 3/4" long.
- One 1/4" 24 hex "long nut", about 1" long. These are often located the threaded stock in the hardware store.
- One collar, 1/2 dia., 1/4" thick, 1/8" center hole and 8-32 set screw hole.
- One 8-32 socket-head cap screw and Allan wrench to fit.

Drill 1/8" through the bolt so the cable passes easily through it, even if the cable is damaged a little. This can be done most easily on a lathe, but could be done with careful drill press work.

The collar can be cut from steel round stock, again most easily on a lathe. You should drill the set screw hole all the way through and tap deeply enough so that the set screw can securely hold the cable.

To use these, screw the long nut ALMOST all the way onto the hollow bolt, so as to allow shortening or lengthening. Discard the set bolts in the standard pivot blocks, and slide the hollow bolt/long nut assembly over end of cable, bolt head first, snug against the pivot block. Fit collar over end of cable. With the locks set as described earlier, securely tighten the set screw in the collar. Now you can do the adjustments by turning the long nut.

Note that this design is a bit bulky, causing a little interference with the lock and trigger/release. It could be improved upon with more machine work. However, it does work, and makes bonnet adjustment much easier. Also note that after adjustment you could replace the standard pivot block set bolts and remove the adjusters, thus using them as a tool instead of a permanently installed part.