

© D. Jensen 2005	<b>REPAIR OF RADIO ANTENNA ON '01 XK8 AND XJ6/XJ8s USING SIMILAR HARADA ANTENNAS*</b>	V. 1.0 Dec. 5, 2005
Distribution: www.jag-lovers.com CC: X300/XK8 List Administrators		

*The Fine Print: The following is a summary of my experience repairing the antenna on my California-based '01 XK8 convertible, VIN NA11439, with 49,825 miles. Given the price of a new antenna (\$300+US), this work had the potential for a significant cost avoidance. Some of the steps described may not be applicable to your car due to its year of manufacture or other details. In addition, I have worked on cars and electrical systems for many years so I have a reasonable understanding of their operations and safety issues that must be addressed. I accept no responsibility or liability for potential misstatements in neither this write-up nor the manner in which the write-up is used. Please follow all normal safety precautions when performing this work.*

The power antenna on my XK8 had worked erratically since we purchased the car as second owners earlier this year. Once in a great while the antenna would go all the way up or all the way down, but it normally stopped somewhere in between. My first step was to replace the wand, as described in numerous postings on Jag-lovers lists, in the Jaguar JTIS CD, and at the ALLDATA™ web page for the XK8/XKR. This did not cure the problem. (Note: it was difficult for me to remove the chrome nut securing the wand because I did not have the proper Jaguar tool, if such a tool exists, for its removal. The nut sits flush with the body in the rubber grommet and is very hard to grasp. I marred the surface of the nut during removal for replacement of the wand, although only I would notice this now.) For the past six months I had left the antenna disconnected and listened mainly to CDs or nearby radio stations. Recently, I decided to fix the problem or install a replacement antenna. I reviewed the description of how to remove the antenna in the JTIS CD. However, neither it nor ALLDATA™ gave any description of how to repair the antenna itself, most likely because the factory assumes that a new antenna will be fit in the event of failure.

\* As near as I can discern, the antenna in my '01 XK8 is virtually identical to that in my '95 XJ6 with the exception of details as to how they are mounted. In fact, I verified that the problem with the XK8 antenna was with the antenna itself and not another source (e.g., radio/CD unit or ECU) by connecting the XK8 antenna to the XJ6 antenna lead and noting the same erratic behavior. While I didn't check parts numbers, the antennas outwardly look the same. I therefore assume that the repair discussed below is applicable to X300 XJ6s and perhaps the X308 XJ8s that use Harada antennas. I have presented a description of access to the XK8 antenna in Steps 1a, 2a and 3, and access to the XJ6 antenna in Steps 1b, 2b and 3.

## Removal of the Antenna (~30 minutes)

- 1a XK8: remove the right-rear taillight/stoplight/turn signal hold-down nuts and cover (Fig. 1a).



Fig. 1a XK8

- 2a XK8: remove the trunk-floor battery cover and disconnect the battery negative-ground cable. Remove the trim panel (Fig. 2a) by slowly pulling it from the rear toward the front. It is not necessary to remove the plastic valence at the rear of the trunk, as called for in the JTIS CD instructions, if you go slowly.

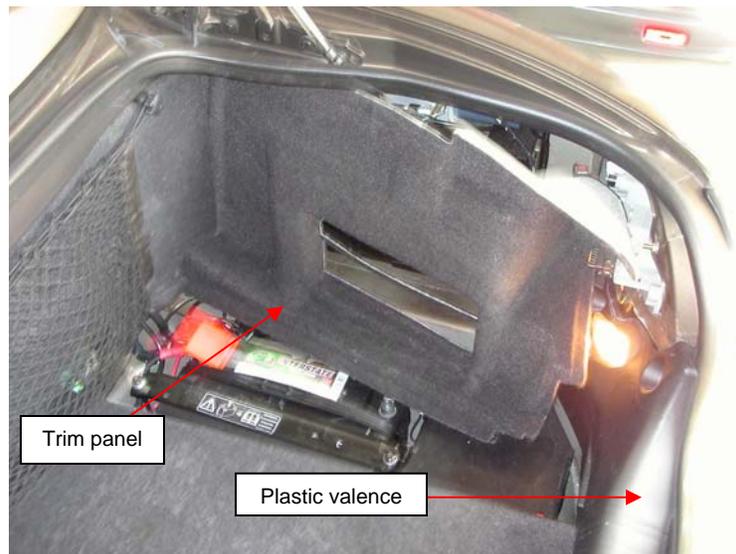


Fig. 2a XK8

- 1b XJ6: remove the right-rear taillight/stoplight/turn signal cover by lifting up on the plastic spring clip (Fig. 1b).

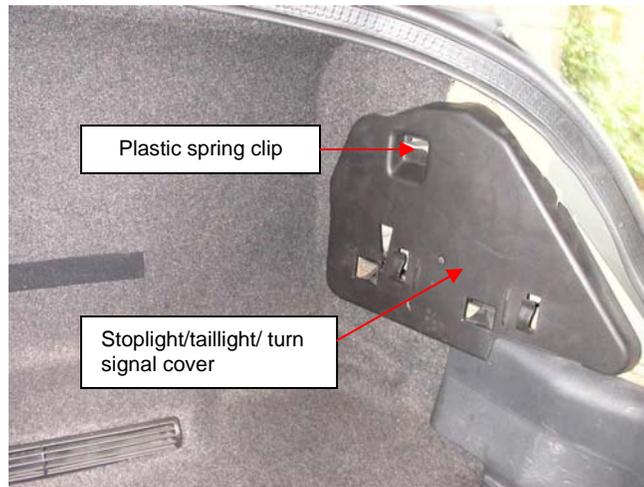


Fig. 1b XJ6

- 2b XJ6: remove the trunk-floor battery cover and disconnect the battery negative-ground cable. Remove the trim panel by lifting it from beneath the rear plastic valence (Fig. 2b) and slowly pulling it from the rear toward the front (Fig. 2c). As with the XK8, it is not necessary to remove the plastic valence at the rear of the trunk.



Fig. 2b XJ6



Fig. 2c XJ6

3. Both: locate the antenna. In my case, the XK8 antenna is positioned behind the CD changer, navigation-system DVD, audio amplifier, and convertible-top hydraulic lines (Fig. 3a). It is far easier to access the antenna in the XJ6 and removal is self evident (Fig. 3b)

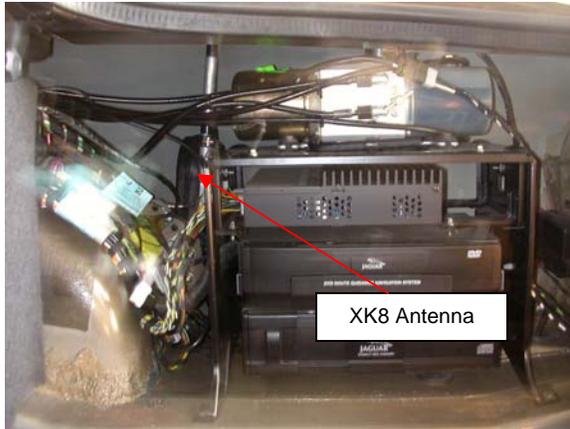


Fig. 3a XK8

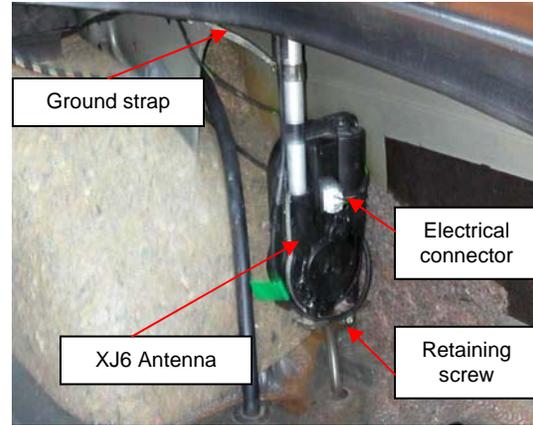


Fig. 3b XJ6

4. Both: disconnect (a) the ground strap from the frame, (b) the antenna lead to radio and (c) the electrical connector (Fig. 4). XK8: I found it useful to unplug the three connections to the audio amplifier to give better access to the antenna. Remove the two Torx screws (not shown) holding the motor support to the body.

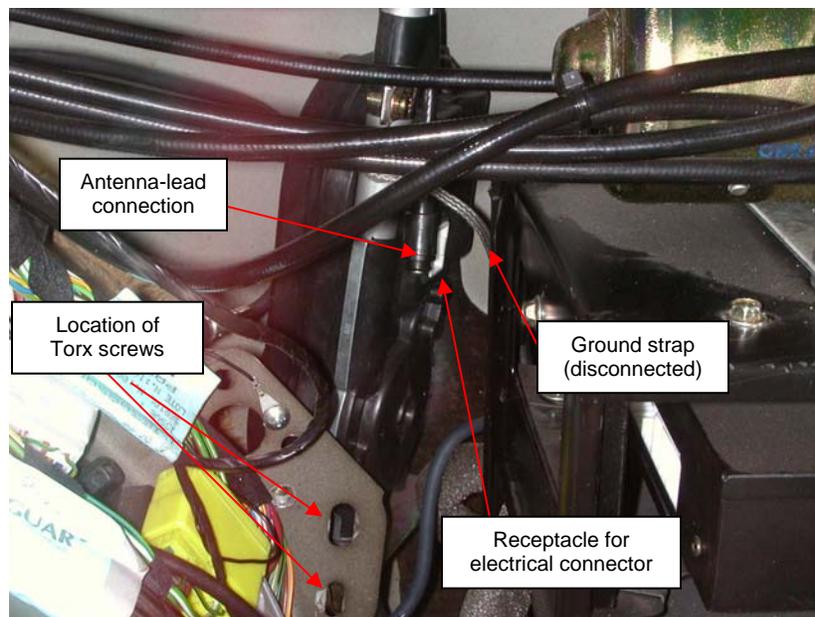


Fig. 4

5. Both from here on: lower the antenna to pull the extension/nut from grommet in the fender. It is not necessary, or even desirable, at this point to remove the chrome nut. Tilt the antenna and pull it upward to extract the drain line from the grommet in the frame. Place the antenna on your work bench (Fig. 5). Remove the six cover retaining screws. Nothing should “jump out” when you do this.

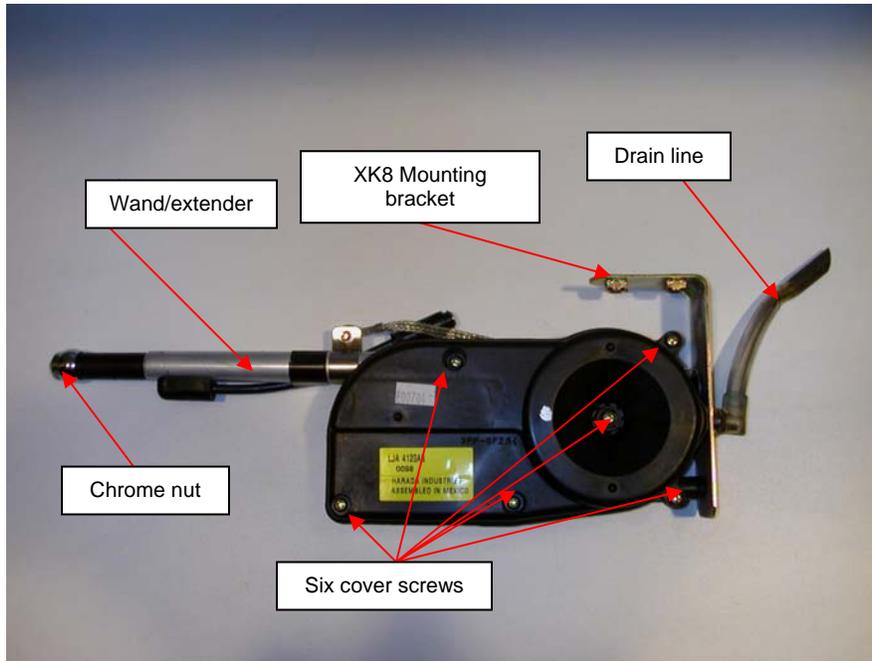


Fig. 5

6. The antenna comprises a motor, circuit board, gears and spool for the wand, and has a minimum of electrical connections (Fig. 6). Start and stop of the motor depends on changes in electrical properties, i.e., current draw, voltage spike

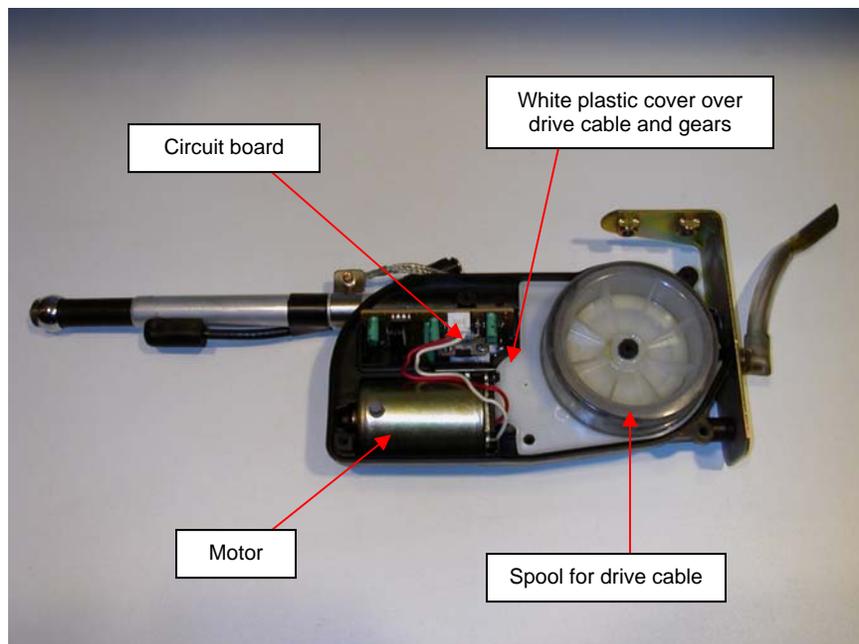


Fig. 6

or some other electrical property (I am not a EE and don't understand the mechanism of control). Mechanical rocker switches found in lower-tech (i.e., lower-cost) aftermarket antennas are not used.

7. Remove the drive-cable spool and plastic cover, revealing the toothed cable and drive gears (Fig. 7). There are no electrical connections in this area. In my case, the problem turned out to be electrical vs. mechanical, so I merely re-coiled the drive cable in the spool and slipped the pieces back into place.

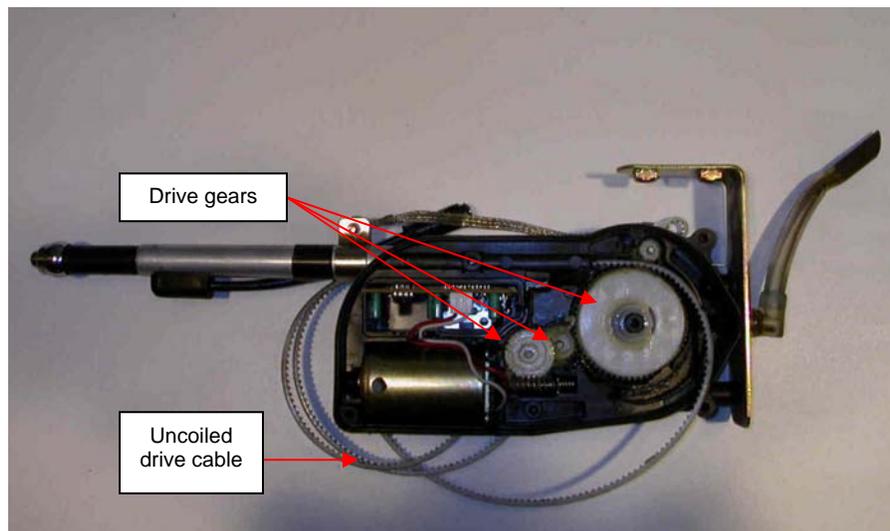


Fig. 7

8. Lift the motor and circuit board from the enclosure (if they are not already out) by raising the white plastic cover at the motor end (Fig. 8).

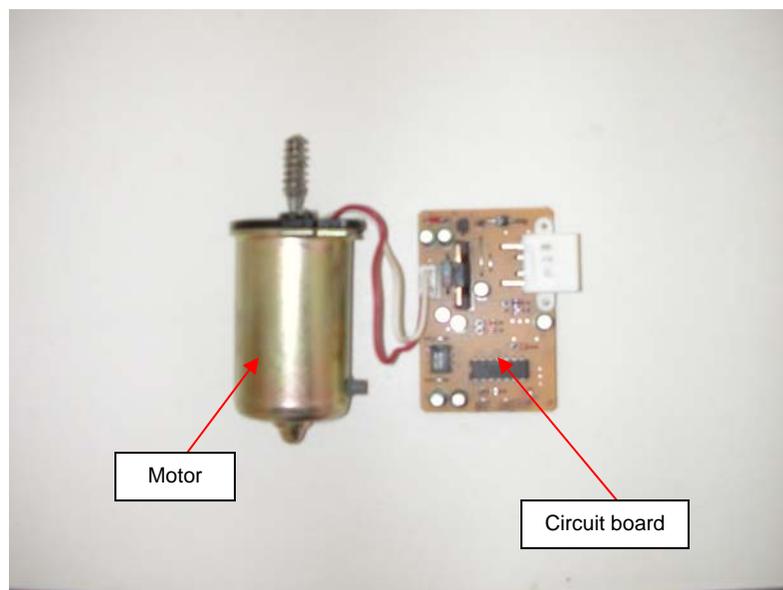


Fig. 8

9. Pull the armature and brush assembly from the motor housing (Fig. 9). A good pull is required due to the magnetic fields tending to hold the armature in place. There are no screws or other means of attachment. Note the number on the circuit board, "M12-JAG", perhaps indicating a Jaguar-specific design.



Fig. 9

10. Look closely at the motor windings, brushes, etc. Mine had copper and carbon debris near the brushes and on the black-plastic end piece. I suspected these might be the source of the intermittent operation (Fig. 10). Everything else looked pristine. There were no adjustable components on the circuit board.

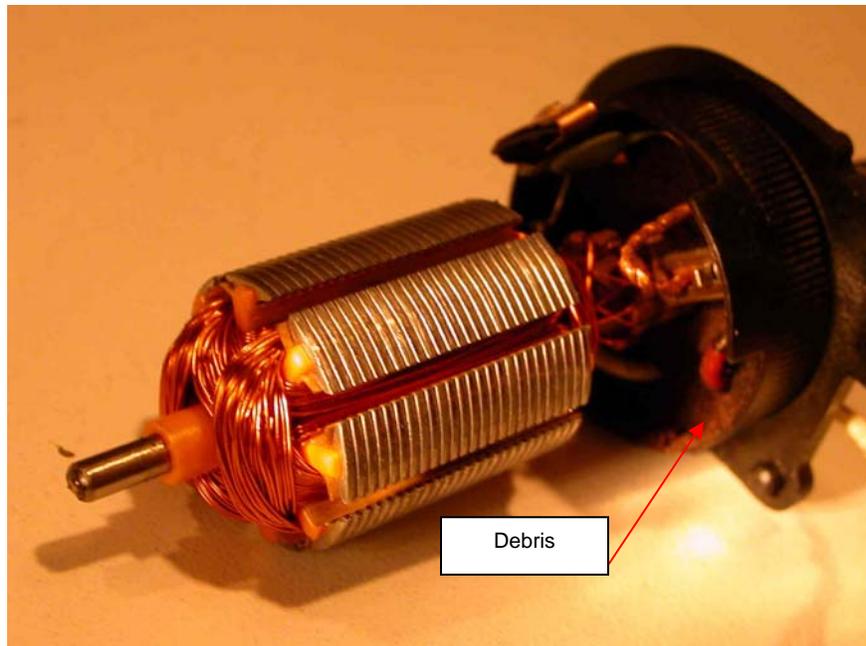


Fig. 10

11. Clean the commutator, gaps in the commutator, brushes and surrounding area with Q-tips and electrical spray cleaner. I gently pulled an X-Acto blade through the gaps in the commutator to remove residual debris there as well. Figure 11 shows these items during cleaning.

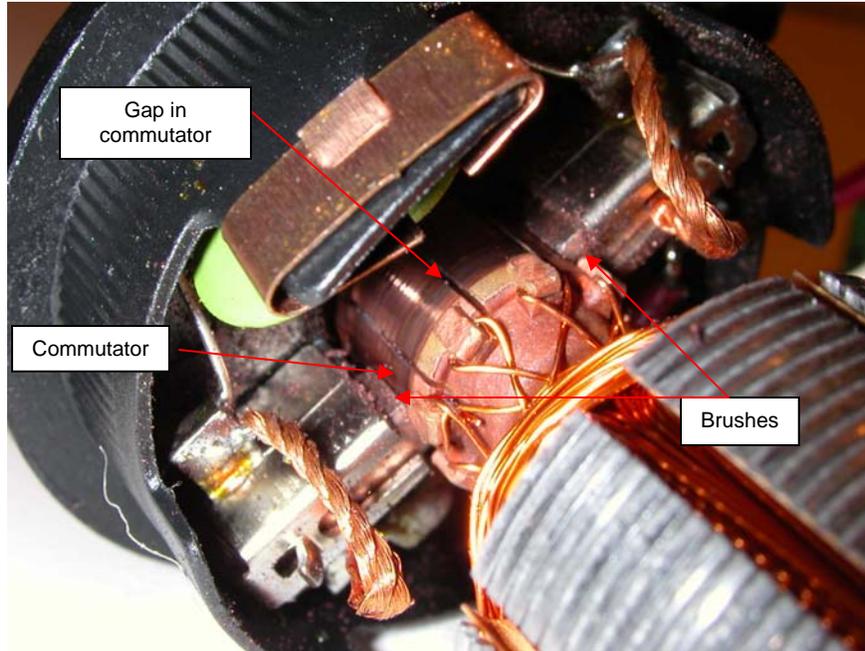


Fig. 11

12. Reassemble the antenna and test before installing by connecting the white electrical connector and grounding the wand ground strap. If you are fortunate, as I was, your antenna will now be extending and retracting reliably.
13. As the Jag manuals say, "Assembly is the reverse of removal". In this case, it's true. If not done already, I would change out the wand at this point if (a) examination of the drive cable shows any wear or (b) the car has high mileage and the wand hasn't been changed out previously. The wand in my '95 XJ6 gave out at ~95,000 miles due to wear and corrosion. I installed the used wand and drive cable from the XK8 that I had earlier replaced.