Repairing Power Antennas

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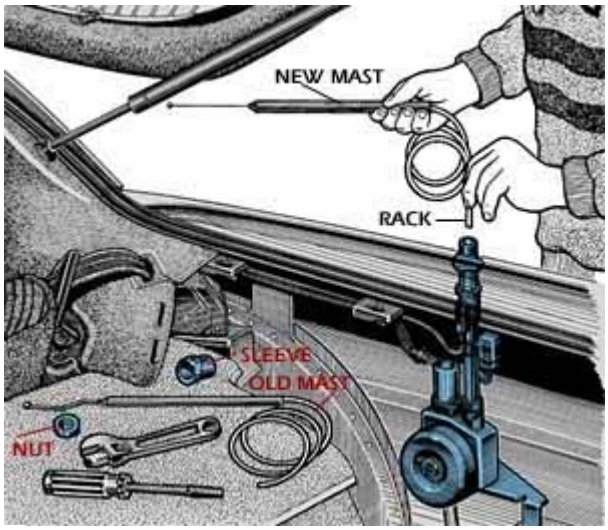
Published on: July 10, 2001

Its time to kick out some jams, so you reach into the console for your favorite MC5 CD. Popping open the jewel box, you reach for the CD, only to find out that Junior has liberally lubricated it with peanut butter and jelly. After making a mental note to give Junior a good talking-to, you decide to surf the airwaves for some good oldtime rock-and-roll. Punching the FM button, you hope that at least one of the radio presets has some Bob Seger tunes hiding behind it. But no, theres nothing to be heard on any channel except a great rushing noise, not even so much as CONELRAD. Time to come back to this millennium and find out whats wrong with your antenna.



A sticky or damaged antenna mast can often be replaced without accessing or disassembling the mechanism. As we show here, this can be done without removing the interior trim.

Manual Or Power?

Fixed antennas have only a couple of failure modes, and generally they involve mechanical damage to the antenna mast or the cable. If part of the mast is still there, youll generally get some sort of signal. A poor connection between the antenna base and the fender also could be a problem. Unscrew the antenna mounting nut and check for corrosion. A cleanup with a wire brush and reassembly might re-establish a good ground.

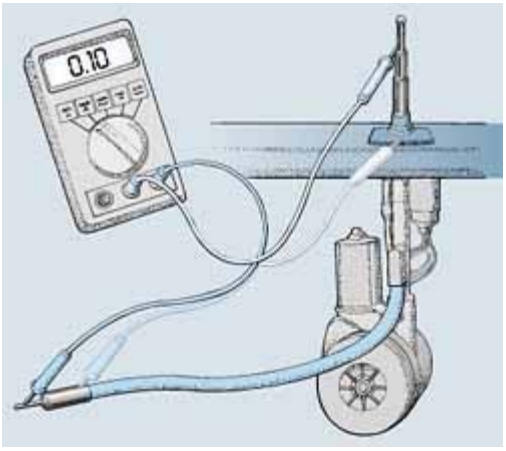
Power antennas are more coy. If theyre too shy to come out of the fender, youre listening to static.

No-Show

The issue could be either electrical or purely mechanical. Go back to your antenna and try to pull the mast out with your fingers. If it moves out readily, pull it out all the way, and then cycle the radio power with the key on. If the mast moves even the slightest amount, or you can hear the motor running at all, the problem is mechanical.

If the motor seems deceased, go back to basicscheck the fuse. Determining which fuse protects the antenna motor may require some detective work. It may be the radio fuse, or it may be a separate fuse, perhaps shared with the rear-window defroster grid or a trunk-mounted CD changer.

Fuse is okay? Check the antennas mounting, as described previously, for a good ground pathway, although there may be a separate ground wire to a specific chassis ground point. You may want to use an ohmmeter to hunt for resistance. Incidentally, if you try to measure the resistance of the antenna cables RF lead between the mast and the radio connector, it may check out as infinite. Some antenna assemblies use a capacitor in series with the RF lead, some dont. The ground shell of the antenna cable should have a low resistance to chassis ground, normally 5 ohms or less.

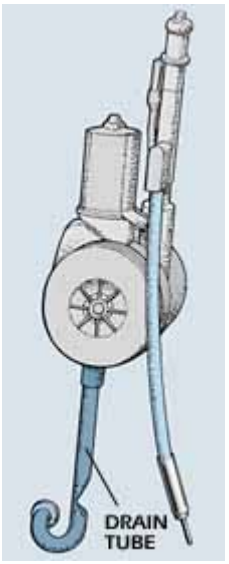


Scratchy radio reception might be caused by poor ground or antenna connections. Use an ohmmeter to chase high-resistance points.

Youll need to find a schematic of the antenna wiring to troubleshoot any deeper. But with the radio and key on, the harness to the antenna assembly should have one hot wire on, and a different wire hot when the key or radio is off. Good hunting.

Stubborn

Does the antenna motor run briefly but not actually move the mast up and down? Or does it move a few inches and then grind to a halt? One problem weve seen is a kinked or pinched drain tube. The mechanism can fill with water, which then freezes solid in cold weather, or corrodes the works and causes a jam. Check the tube, especially if you can pull the mast out manually and its wet. If the tube is compromised and the works are full of water, you may need to disassemble the thing, dry it out, and put it back together with fresh lubricant.



If water that leaks down the mast can’t escape, the mechanism may freeze up.

Can you help the mast along in and out? If so, the sliding sections of the mast may be corroded or bent. Careful bending by hand may restore movement, and polishing with 600-grit sandpaper or rubbing compound can smooth the action. At the very least, run the mast completely out and clean it thoroughly with a soft cloth, relubricating with a sparse amount of silicone grease or paste wax.

Whats That Funny Noise?
Modern power antennas use a simple, flexible rack-and-pinion mechanism. Its pretty reliable, but abuse and the ravages of time and weather can literally strip the gears. So if you hear noises that sound like interrupted gear meshing, theres probably some section of the rack or pinion thats in need of dental work. Its possible to fix this without replacing the antenna assembly outright (you may not even have to access the mechanism).

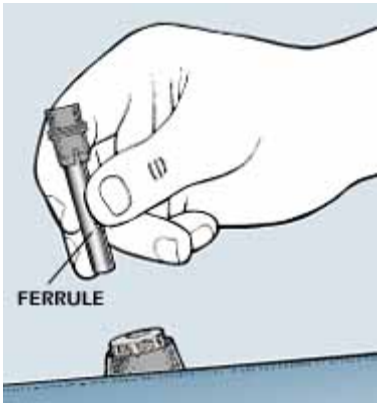
Visit your dealerships parts department. GM, for one, offers a repair kit for power antennas. This consists of a new mast and rack assembly, ready to install. You may need to order it, as the two dealers we tried had to. There are aftermarket antenna parts to be had, but finding the right part is going to be difficult unless you have better luck than we did interrogating the staff behind the parts counter at the local warehouse distributor.

Heres how the system works: The limit switches that stop the motor at both ends of the antenna masts travel are built into the mechanism, and you can consider them unserviceable. The limit switches rely on the antenna bottoming out or topping out to rotate a switch drum, at which point the current to the motor turns off.

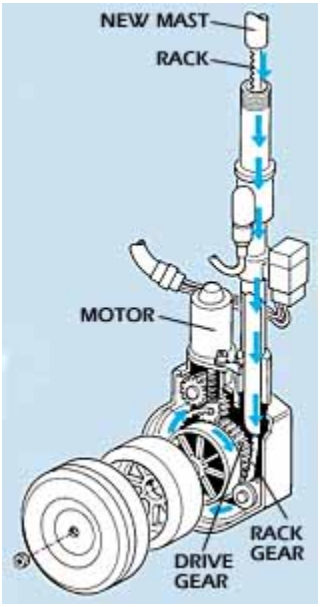
At the top of the antenna mechanism is a large nut that holds the whole works onto the fender. Remove this nut. This isnt as easy as it sounds if it doesnt have flats that you can turn with a wrench. You may need to use a spanner with pinsalthough a pair of snap ring pliers may work if the nut isnt wickedly tight. At the potential expense of the chrome finish, you may need to fall back on the mechanics friend, locking pliers. Under the nut and perhaps a plastic spacer or two there will be a ferrule, which is the stepped sleeve that the mast actually bumps into at the end of its travel upward. Pull out this ferrule. Now have someone else turn on the radio. The mast should elevate itself completely out and flop over, so you have to be there to catch it. Carefully notice which way the teeth of the rack point as the mast clears the fender. Note the state of the teeth. Missing teeth probably mean you should disassemble the housing and clear all the bits out, but teeth that are simply worn-out should be okay.

The new masts rack has been curled up like a pigs tail in the package, and it will be difficult getting it to mesh with the gears. With your fingers or pliers, bend the bottom 2 or 3 in. backward to remove the curl. The end should be straight now. After making sure that the radio is turned off, take a look at the last toothyou may need to remove a small amount of casting flash. A pocketknife does that job well.

Take the new mast, with the teeth of its rack appropriately oriented, and insert it into the hole until it bottoms. Rotate the mast a little to the left and right to get the teeth to mesh with the pinion gear. Have your helper turn the radio on and off while you push the new mast firmly down. This will cause the limit switch to cycle inside the mechanism. Now have your helper turn the radio on, and if all is well, the mast will suck itself very neatly in until it bottoms out. All you need to do now is reinstall the ferrule, spacers and nut.



Remove the outer nut and collar as a first step to removing or replacing the mast.



It may take a little fumbling to get the rack to mesh with the drive pinion, but when it does the mast will run completely home by itself.

Lightly lube the mast sections with silicone grease or paste wax.

Outer Limits

If the limit switch mechanism stops working, you may be able to disassemble it, clean up any foreign matter or corrosion, and get it running again. The switch consists of a plastic drum with wiper fingers and electrical traces, so its vulnerable to moisture and dried-out lubricant. If you cant fix it, or the motor itself is toasted, youll need to replace the whole shootin match. An aftermarket antenna will set you back about $60 to $75 at the local auto parts store, or more than a hundred at the dealermaybe more for a luxury import. The OEM parts will, of course, drop in. Aftermarket pieces may require a certain amount of adaptation to mount properly, and perhaps even some creative wiring to make them work properly. Dont forget to check for used parts at the local scrapyard or auto recycler.

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