Vehicle Mercury Light Switch Removal Guide

For Vehicle Mercury Light Switches and Anti-Lock Braking System (ABS) G-Force Sensors

Hazardous Waste and Toxics Reduction Program

Washington State Department of Ecology
Olympia, Washington

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Related Information

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[1] https://apps.ecology.wa.gov/publications/SummaryPages/0804005.html
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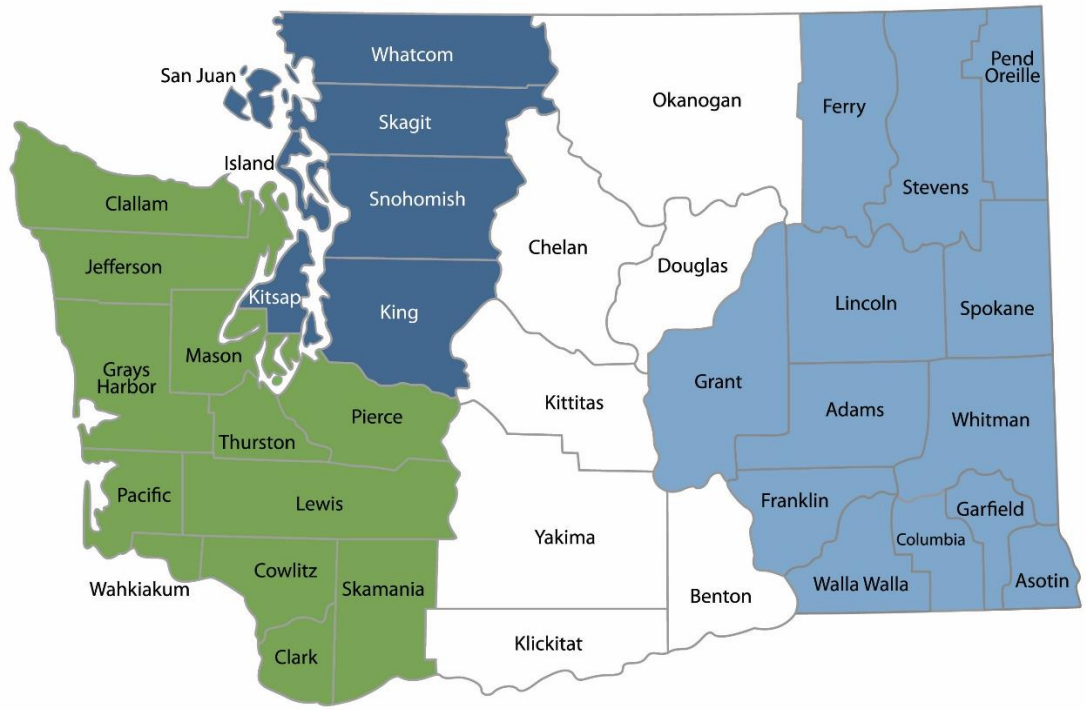
Department of Ecology's Region Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400

Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	P.O. Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	P.O. Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 West Alder Street Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 North Monroe Spokane, WA 99205	509-329-3400
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DEPARTMENT OF
ECOLOGY
State of Washington

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You Can Take Action to Prevent Mercury Pollution

Pull out your vehicle mercury light switches.

Removing just one mercury switch can prevent contamination of a 20-acre lake for one year!

Figure 1: This small automotive light switch contains one gram of liquid mercury.

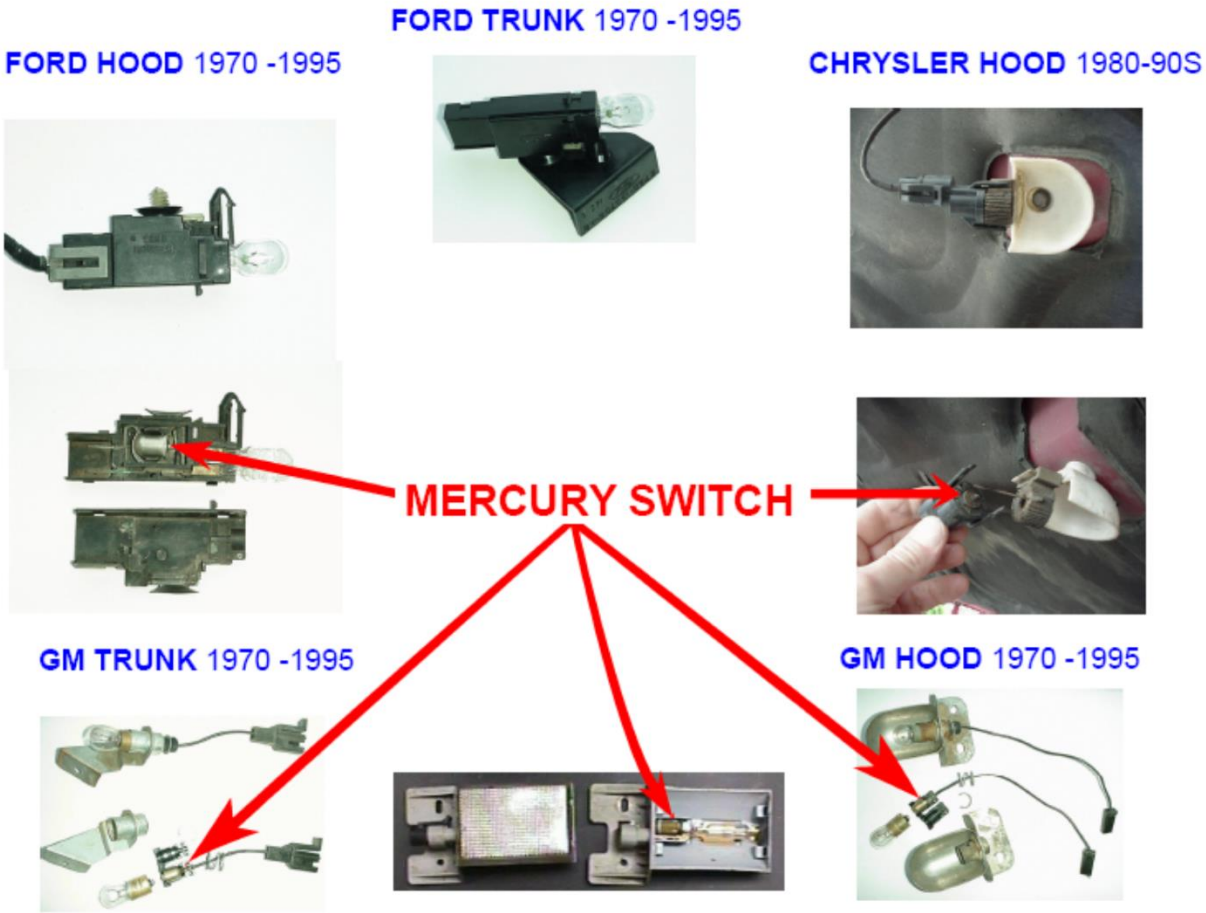


Figure 2: Examples of mercury switches in automobiles.

Automobile Mercury Switch Removal from Hoods and Trunks

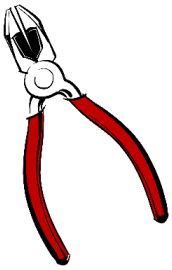
Auto recyclers from throughout the state have removed thousands of mercury switches. They report that it takes about 30 seconds to remove the entire assembly.

What to do:

- Remove all mercury switch assemblies from vehicles as soon as possible.
    - Lift the hood/trunk and locate the small mercury lighting switch assembly. Cut the one or two wires leading into the device.
    - Remove any fasteners required to separate the assembly from the vehicle.
    - Unscrew, unbolt, or pry the light fixture from the hood/trunk.
    - Place the entire assembly in a leak-proof, closed plastic container. A 5-gallon bucket with a secure lid will work fine. You may remove as much of external wires and housing as possible to make more room in the container.
- Clearly label the bucket.
    - Labels should say either:
        - "UNIVERSAL WASTE: Mercury-Containing Equipment" or
        - "UNIVERSAL WASTE: Used Mercury Switches."
    - You can print free labels from our website.[4]
- Leave the mercury pellet in the assembly. The mercury in the switch assembly is enclosed in a metal capsule (pellet) about the same size as the tip of your little finger.
- Keep the bucket with the used mercury switches in a safe place and under cover until recycled or properly disposed.
- Remove the mercury switches in the anti-lock braking (ABS) system if possible. See page 15 for 4-wheel drive vehicles with ABS systems that have mercury switches and how to remove them.

[4] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Dangerous-waste-guidance/Dangerous-waste-basics/Label-dangerous-waste/Print-free-labels

Tools most useful in doing the job:

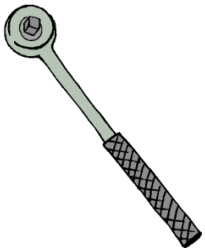


Wire cutter

Pry bar

Wrench

Screwdriver



Ratchet

Sign Up to Get Reimbursed!

Ecology, the Automotive Recyclers of Washington Association (AROW), and End of Life Vehicle Solutions (ELVS) are cooperating in a voluntary statewide program to collect mercury switches.

Washington State auto recyclers, including dismantlers, wrecking yards, and scrap processors, will be reimbursed as follows:

- $3.00 for each mercury switch assembly collected.
- $9.00 for each ABS sensor collected.

Collection containers, transportation, and disposal are provided by ELVS. Republic Services is the disposal company.

If you're an auto recycler, sign up for the program[5] to receive:

- A voucher form with instructions for receiving your reimbursement.
- A small (1.25 gallon) or large (3.5 gallon) environmentally safe collection container. The container will be sent from Republic Services to your business via UPS.
- Shipping instructions.
- A label that reads "UNIVERSAL WASTE – USED MERCURY SWITCHES."
- A handout with example photos of acceptable mercury automotive switches.
- *A Quick Guide for Removing and Recycling Mercury Switches*.

For more information

See Ecology's automotive mercury switch removal webpage for more information.

[5] https://ecology.wa.gov/regulations-permits/guidance-technical-assistance/dangerous-waste-guidance/common-dangerous-waste/auto-recyclers/automotive-mercury-switch-removal#signup

Mercury Light Switch Components in Vehicles

According to industry representatives, any vehicle equipped with a convenience light in the hood or trunk is likely to have mercury switches if it is a:

- 2002 or older model made by Ford or General Motors.
- 1998 or older model made by Chrysler.

The table below lists the make, model, and model year of vehicles reported to have mercury convenience light switches. Some vehicles have both hood and trunk light switches. Some have only one.

Table 1: Make, model, and model year of vehicles reported to have mercury convenience switches.

Make	Model	Location	Years Used
Audi	Audi	Hood and trunk	1977–1988
Audi	Audi 100	Hood and trunk	1977–1988
Audi	Audi 200	Hood and trunk	1980–1988
BMW	All	Hood and trunk	up to 1992
Buick	Celebrity	Hood and trunk	1977–1998
Buick	Century	Hood and trunk	1977–1998
Buick	Firenza	Hood and trunk	1977–1998
Buick	LeSabre	Hood and trunk	1977–1998
Buick	Park Avenue	Hood and trunk	1977–1998
Buick	Regal	Hood and trunk	1977–1998
Buick	Skylark	Hood and trunk	1977–1998
Buick	Skyhawk	Hood and trunk	1977–1998
Cadillac	Cimarron	Hood and trunk	1979
Cadillac	Deville	Hood and trunk	1979
Chrysler	Aries	Hood and trunk	1975–1998
Chrysler	Cordoba	Hood and trunk	1975–1998
Chrysler	Laser	Hood and trunk	1975–1998
Chrysler	LeBaron	Hood and trunk	1975–1998
Chrysler	New Yorker	Hood and trunk	1975–1998
Chrysler	Reliant	Hood and trunk	1975–1998
Chrysler	Shadow	Hood and trunk	1975–1998
Chrysler	Sundance	Hood and trunk	1975–1998
Ford	Lincoln Blackwood	Hood	2001
Ford	Bronco II	Hood and trunk	1974–1998
Ford	Cougar	Hood and trunk	1974–1998

Make	Model	Location	Years Used
Ford	Crown Victoria	Hood and trunk	1974–2000
Ford	Escort	Hood and trunk	1974–1998
Ford	Excursion	Hood	2000
Ford	Expedition	Hood	2000–2001
Ford	Explorer	Hood and trunk	2000
Ford	F-Series Truck (F 150-550)	Hood and trunk	1974–2000
Ford	F-150 Supercrew	Hood	2001
Ford	F-250	Hood	1974–1994
Ford	Fiesta	Trunk	1983–1989
Ford	Granada	Trunk	1982–1985
Ford	LTD	Hood	1974–1994
Ford	Mercury Models	Hood and trunk	1970–2003
Ford	Lincoln Models	Hood and trunk	1970–2003
Ford	Ranger	Hood and trunk	1974–1998, 2000
Ford	Sierra	Trunk	1983–1985
Ford	Taurus	Hood and trunk	1974–1998
Ford	Tempo	Hood and trunk	1974–1998
Ford	Thunderbird	Hood and trunk	1974–1998
Ford	Topaz	Hood and trunk	1974–1998
General Motors	Cadillac Escalade	Hood	2000–2001
General Motors	Chevrolet Beretta	Hood and trunk	1981–1990
General Motors	Chevrolet Blazer	Hood	2000–2001
General Motors	Chevrolet Blazer	Hood (2-door)	2002
General Motors	Chevrolet Caprice	Hood and trunk	1981–1990
General Motors	Chevrolet Cavalier	Hood and trunk	2000
General Motors	Chevrolet Cavalier	Trunk	2001
General Motors	Chevrolet Express	Hood	2000–2002
General Motors	Chevrolet Lumina	Hood and trunk	1981–1990
General Motors	GMC Denali	Hood	2000
General Motors	GMC Envoy	Hood	2000–2001
General Motors	GMC Jimmy	Hood	2000–2001
General Motors	GMC Savanna	Hood	2000–2001
General Motors	Pontiac Sunfire	Hood	2000
General Motors	Pontiac Sunfire	Trunk	2001
Mazda	Navajo	Hood	1993–1997
Mazda	B-Series Pickup	Hood	1995–1999

Make	Model	Location	Years Used
Oldsmobile	Bravada	Hood	2000–2001
Oldsmobile	Calais	Hood and trunk	1977–1990
Oldsmobile	Cutlass Ciera	Hood and trunk	1977–1990
Oldsmobile	Cutlass Supreme	Hood and trunk	1977–1990
Oldsmobile	Delta	Hood and trunk	1977–1990
Oldsmobile	Regency	Hood and trunk	1977–1990
Oldsmobile	Toronado	Hood and trunk	1977–1990
Pontiac	Bonneville	Hood and trunk	1984–1990
Pontiac	Grand Am	Hood and trunk	1984–1990
Pontiac	Sunbird	Hood and trunk	1984–1990
Peugeot	All	Hood	Until 1992
Porsche	944	Hood	1985–1991
Rolls Royce	All	Hood	Until mid-1960s
Rover Group (MGs)	All	Hood	1988–1999
Saab	900/9000cc,cd	Hood and trunk	Until 1991
Volvo	240/260	Hood and trunk	1975–1991
Volvo	740/760	Hood	1982–1990
Volvo	744-764	Trunk	1982–1991

European manufacturers phased out mercury hood and trunk light switches in 1993. Other foreign manufacturers phased out mercury light switches by 1996. Toyota and Honda never had mercury light switches.

The list of cars suspected to contain mercury light switches is subject to change and is being revised as the program matures. Check the ELVS website for an updated list of vehicles containing mercury switches.[6]

Sources:

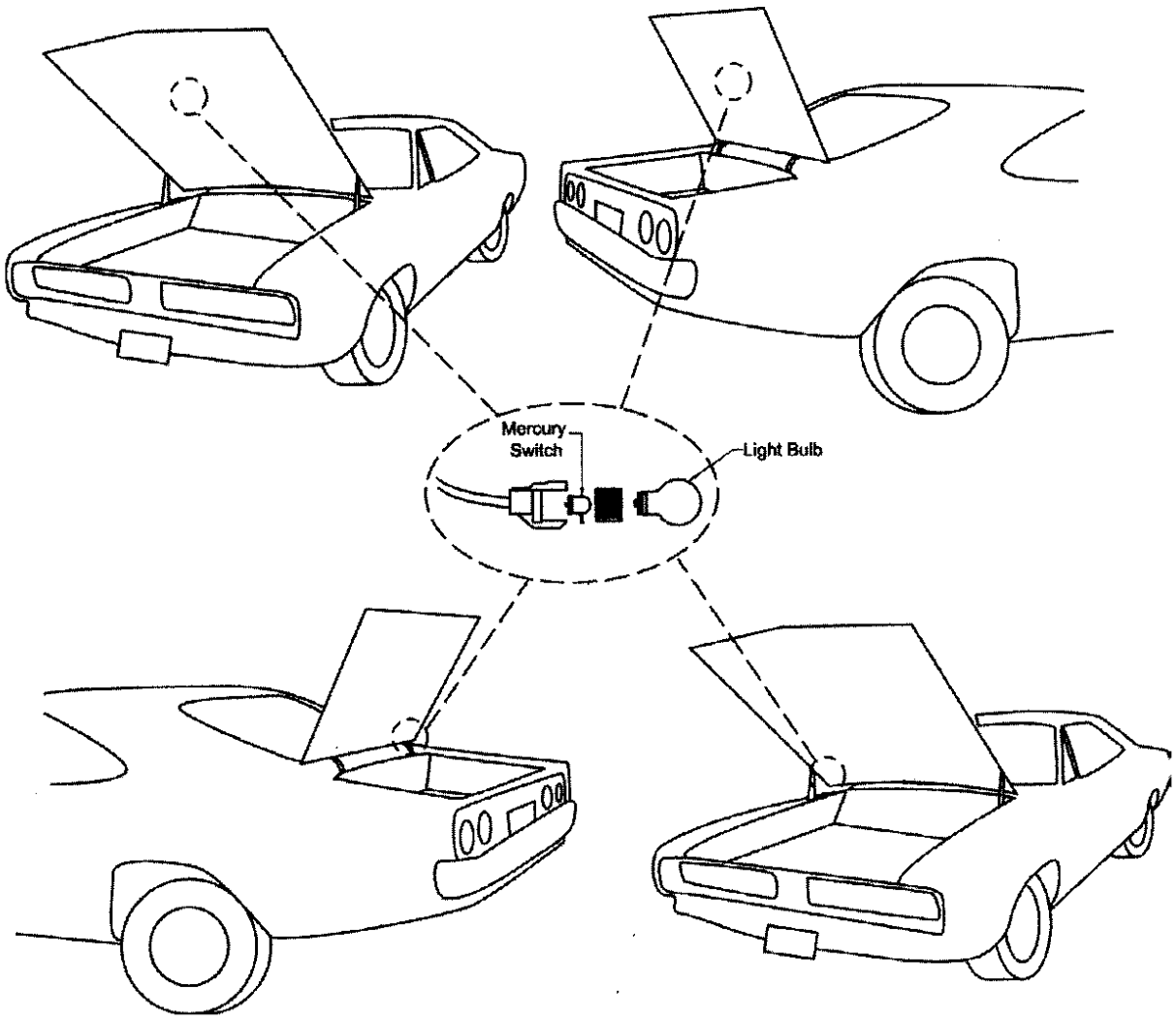
- Master List of Automobiles with Mercury-Added Component Parts, State of Maine – 2002.
- Known 2000-2001 Uses of Mercury in Vehicles, State of Vermont.
- Vehicles that Contain Mercury Switches as of 1994, State of Minnesota Pollution Control Agency.
- Switch Out Program List, Clean Air Foundation of Canada, & NE Resource Council list of vehicles with mercury switches.

[6] https://elvsolutions.org/?page_id=542

- A Quick Guide for Removing and Recycling Mercury Switches, End of Life Vehicle Solutions (ELVS).

Figure 3: Mercury pellets – actual size.

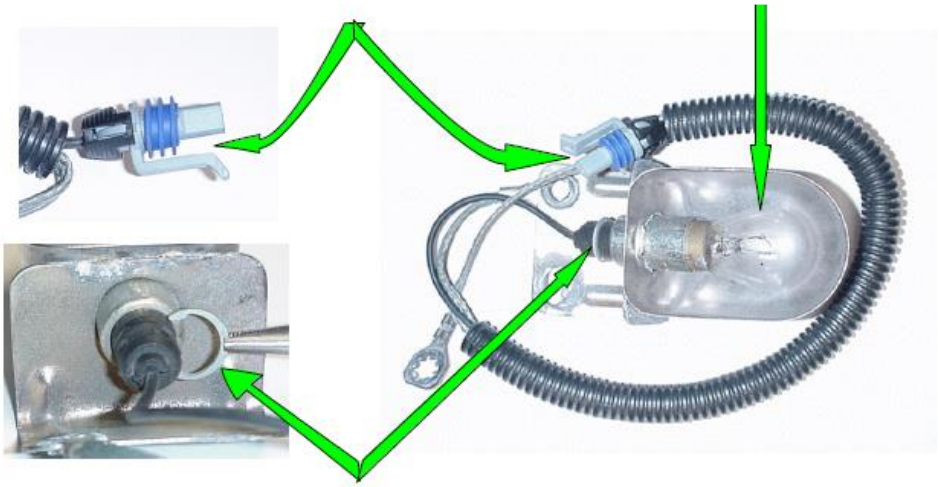
Location of Mercury Switches in Automobile Hood and Trunk Lights



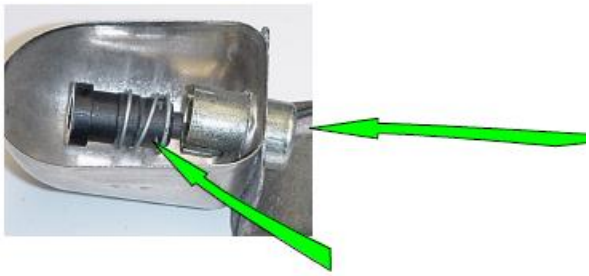
Removal of Mercury Switch in 1970-1998 GM Hood Lighting Assembly

Remove and collect the entire lighting assembly in Washington State.

1. Remove the wiring clip by sliding a screwdriver under the clip and sliding the clip back to remove the power source. Then remove the light bulb from the twist socket.



2. Remove the clip that secures the mercury switch holder in the lighting assembly by pulling the clip off with a pair of needle-nose pliers. Cut off the wire and place the assembly in your collection bucket.



3. The mercury switch pellet is located in the holder where the wire is attached.

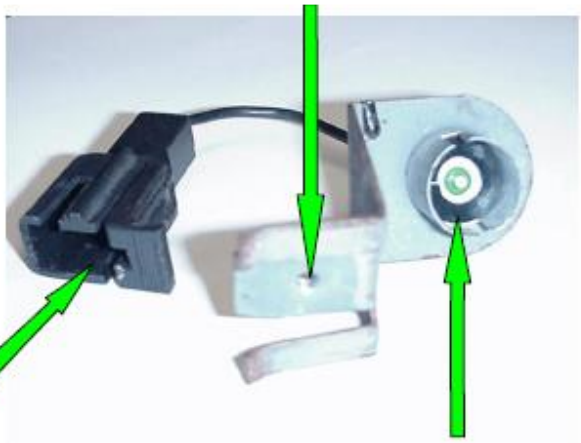
4. You'll see a spring around the switch holder.

5. The mercury switch pellet is located in the plastic switch holder.

Removal of Mercury Switch in 1970-1998 GM Trunk Lighting Assembly

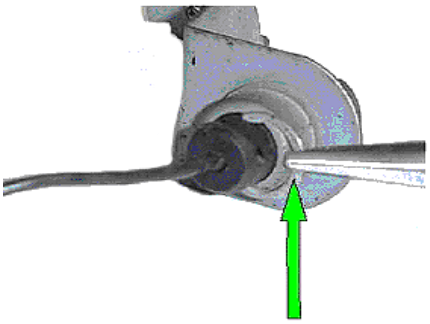
Remove and collect the entire lighting assembly in Washington State.

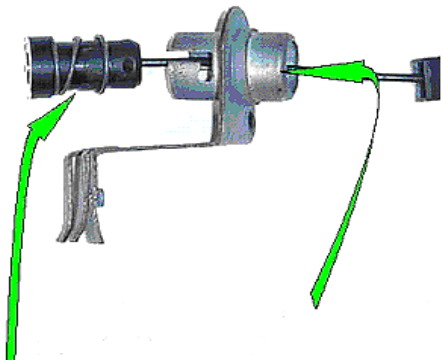
1. Locate the lighting assembly in a recess adjacent to the trunk latch. Use a 7-mm hex driver to remove the single fastener that holds the assembly. Pull the entire assembly out of the recess hole.

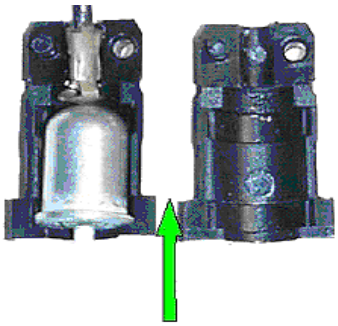


2. Remove the power source by pulling the lighting assembly connector out of its mating connector by hand.

3. Remove the bulb from the assembly by pressing down and twisting counterclockwise. Place assembly in plastic bucket.







4. The clip that secures the mercury switch pellet holder.

5. The mercury pellet holder is attached to the wire.

6. Spring around mercury pellet holder.

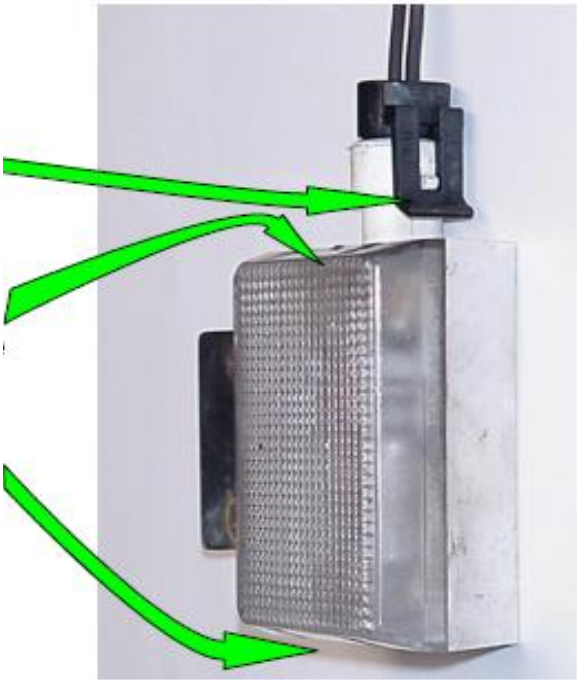
7. The plastic mercury switch pellet holder apart along the center line.

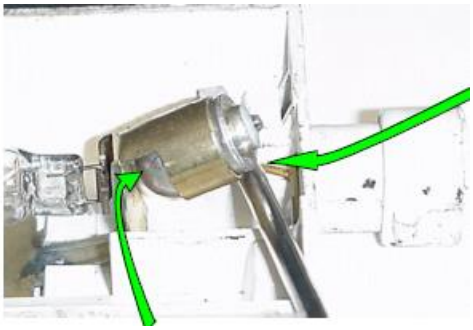
Removal of Mercury Switch in 1980-1998 GM Rectangular Hood Lighting Assembly

Remove and collect the entire lighting assembly in Washington State.

1. Remove the wiring clip by sliding a screwdriver under the clip and sliding the clip back to remove the power source.

2. Remove the clear plastic dome by gently squeezing the center of the dome on the short sides with thumb and forefinger. Place assembly in the collection bucket.



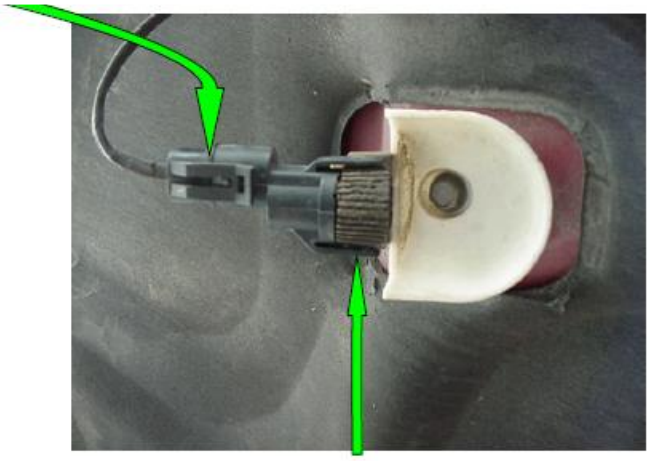


3. The mercury switch pellet is located in a small metal holder.

Removal of Mercury Switch in 1985-1995 Chrysler Hood Lighting Assembly

Remove and collect entire lighting assembly in Washington State.

1. Remove the wiring clip from the back of assembly by sliding a screwdriver under the clip and sliding the clip back to remove the power source.



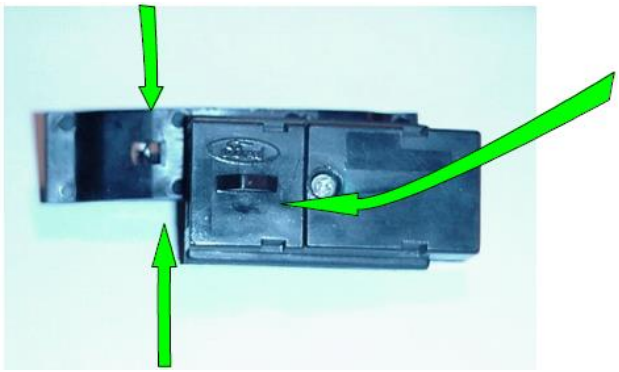
2. Remove the mercury switch holder from the back of the lighting assembly by sliding a screwdriver under the two wing clips and pulling until the switch holder clears the copper rod on the attached section. Place assembly in collection bucket.

3. The mercury switch pellet is located in the back of the lighting assembly.

Removal of Mercury Switch in 1998 Ford Trunk Lighting Assembly

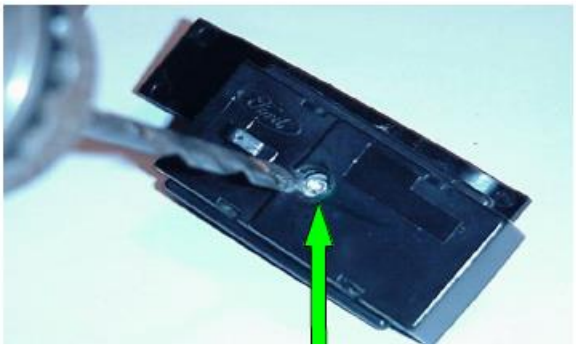
Remove and collect entire lighting assembly in Washington State.

1. Locate the lighting assembly on the driver's side trunk lid arm. Use a screwdriver to pry the assembly fastener off the trunk lid arm.

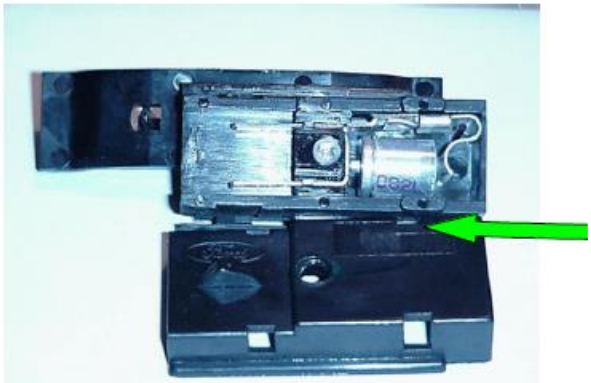


2. Remove the power source by lifting the wiring connector over the tab and pulling the wiring harness off the lighting assembly. Place the assembly in the collection bucket.

3. The bulb may be removed from the assembly by pulling it from the socket.



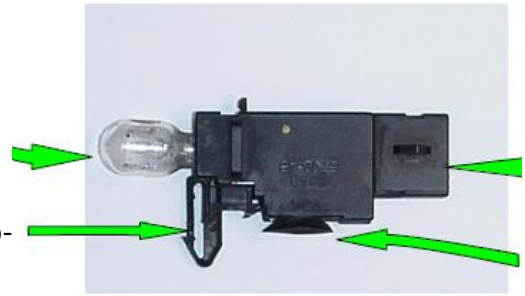
4. A drill with a 3/8" bit may be used to remove the head of the pop rivet that secures the two halves of the assembly.



5. The plastic casing may be pried apart using a straight blade screwdriver. The mercury switch pellet is located in the casing.

Removal of Mercury Switch in Ford Hood and Trunk Lighting Assembly

Remove and collect entire lighting assembly in Washington State.

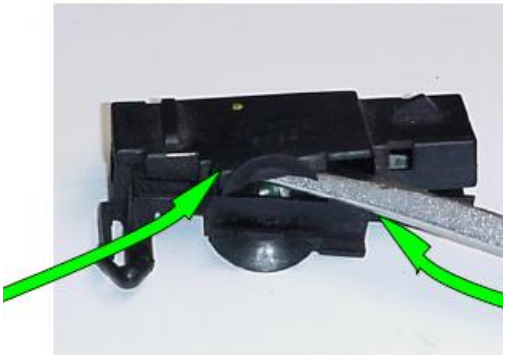


2. Remove bulb.

3. Compress front two-part arrow shaped leg near bulb with screwdriver and pull out of mounting hole.

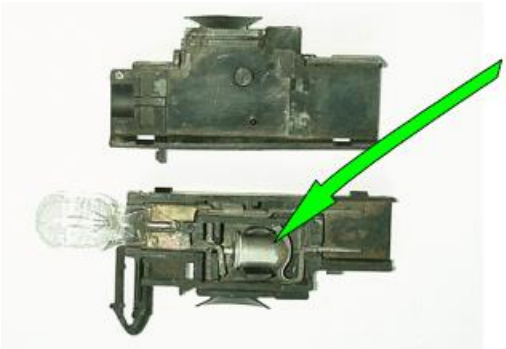
1. Remove wiring clip from back of assembly by sliding a screwdriver under the clip and sliding clip back.

4. Slide the slotted center mounting assembly off plastic brace and place in collection bucket.



6. Assembly may be opened by moving screwdriver to position shown and applying upward motion to pop front latching leg out.

5. Slide screwdriver between two-part case at rear of assembly to open rear latch.



7. Mercury switch pellet is located in the center of the case.

Removal of Mercury Switches in Anti-Lock Braking Systems (Optional)

Anti-lock braking systems on some 4-wheel drive vehicles contain mercury switches. The switches are in a G-Force sensor that detects deceleration and takes the vehicle out of 4-wheel drive during slipping.

Which vehicles have ABS sensors with mercury switches?

Not all vehicles with ABS have G-Force sensors that contain mercury switches. General Motors, for example, never used mercury switches in ABS on its vehicles. Several other automakers, including Mitsubishi and Subaru, phased out the use of mercury switches in ABS in the mid-1990s. **USE OF MERCURY SWITCHES WILL BE PHASED OUT IN ALL VEHICLES AS OF MODEL YEAR 2004.**

Table 2: Vehicles with ABS sensors with mercury switches.

Make	Model	Model Years Used
Audi	80/90/Coupe	1987–1993
Audi	100/Avant	1987–1993
Audi	V8	1989–1995
Audi	200	1987–1991
Audi	Cabriolet	1992
Audi	Coupe Quattro	1987–1992
Dodge	Stealth 4WD	1992–1996
Ford	Bronco	1992–1997
Ford	Explorer	1993–2002
Ford	Mercury Mountaineer	1997–2002
Ford	4x4 Ranger Pickup	1995–2001
Jeep	Cherokee	1992–2001
Jeep	Grand Cherokee	1993–2001
Jeep	Wrangler	1992–2003
Mazda	B-Series Pickup	1995–2001
Mazda	Navajo	1993–2002
Mercedes	All	1985–1992
Mitsubishi	3000 GT 4WD	1991–1994
Mitsubishi	Eclipse 4WD	1991–1993
Mitsubishi	Expo 4WD & LVR 4WD	1991–1993
Mitsubishi	Galant 4WD	1990–1992
Nissan	4x4 Pathfinder	1996
Subaru	Legacy AWD with 5 M/T*	1990–1995
Subaru	Impreza AWD with 5 M/T*	1993–1996

* M/T = Manual transmission

The table above lists the make, model, and model year of vehicles reported to have mercury-containing G-Force sensors. **The Subaru sensors contain two mercury switches. The sensors on all other listed models have three mercury switches.**

How do I find and remove the ABS G-Force sensors?

What do they look like?

ABS G-Force sensors consist of three mercury switches embedded in plastic. The sensors are about 2 to 3 inches long by about 1½ to 2 inches wide. The entire component with mounting bolts weighs about 3 to 4 ounces.

Where are they located?

The diagram below shows the four locations where the ABS G-Force sensor is commonly found:

- The drive tunnel.
- Below the rear seat on the floor pan.
- On the left frame rail, directly below the driver.
- On the right front wheel apron.

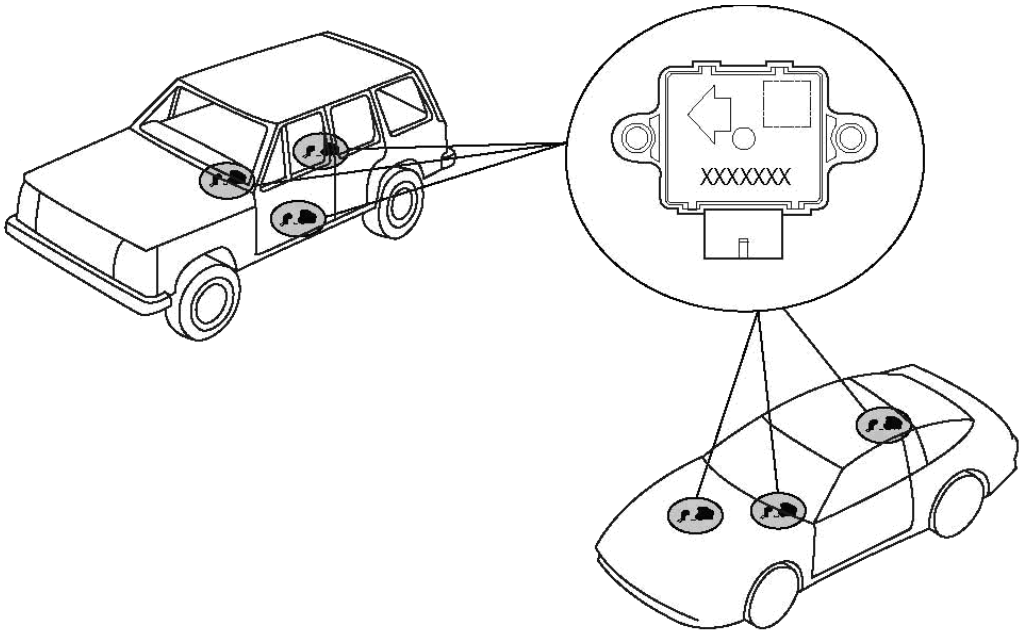


Figure 4: Four locations where the ABS G-Force sensor is commonly found.

How do I remove the sensor?

The removal procedure varies as described on the next page depending on the vehicle model. Estimated average removal time is 5 to 7 minutes if done in conjunction with fluid removal, or 15 minutes if the vehicle is not already on a lift.

What do I do with the ABS sensor after removing it?

Put the sensor in the same bucket used for storing the mercury light switch assemblies.

Anti-Lock Braking System Sensor Removal Procedure

Dodge, Mitsubishi, and Nissan Vehicles (see Table 2 for models affected):

1. Disconnect the battery.
2. Locate the ABS G-Force sensor under the center floor console.
3. Remove center floor console.
4. Disconnect the harness connector.
5. Remove the two bolts to release the sensor.

Ford and Mazda Vehicles (see Table 2 for models affected):

1. Disconnect the battery.
2. Raise and support the vehicle.
3. Locate the ABS sensor on the left frame rail, directly below the driver.
4. Remove the two nuts.
5. Unclip the fuel filter from the vehicle frame (on some models).
6. Disconnect the harness connector.
7. Remove the ABS G-Force sensor.

1992-2001 Jeep Cherokee & 1993-2001 Jeep Grand Cherokee:

1. Disconnect the battery.
2. Fold the rear seat assembly forward (and roll back the carpeting on Jeep Grand Cherokee) for access to the sensor.
3. Locate the ABS G-Force sensor.
4. Disconnect the harness connector.
5. Remove the two bolts to release the sensor.

1992-2003 Jeep Wrangler:

1. Disconnect the battery.
2. From the driver's side, lift carpet back in front of console/shifter.
3. Locate the ABS G-Force sensor in front of the console/shifter mounted to a bracket on the floor pan.
4. Disconnect the harness connector.
5. Remove the two bolts to release the sensor.

Subaru 1990-1995 Legacy with 5MT AWD, 1993-1996 Impreza with 5MT AWD:

1. Locate the ABS G-sensor on right front wheel apron.
2. Disconnect the wire harness connector from the switch and mounting hardware (2 screws).

Anti-Lock Braking System
Mercury Removal and Recycling

Removal of ABS switches from Daimler-Chrysler Grand Cherokee and Ford Explorer

The diagrams at right will clarify the process by showing component locations and giving the estimated time needed to recover the mercury acceleration sensors.

The Grand Cherokee and Ford Explorer are the highest volume vehicles that contain mercury acceleration sensors. That is why the examples are used.

Sample Vehicles

1996 Grand Cherokee

Three 4-wheel drive Jeep models (Wrangler, Cherokee, Grand Cherokee) were produced with mercury acceleration sensors from 1990 to 2001 model years. The sensor contains three – 1 gram mercury switch capsules embedded in a solid plastic component. The entire component weighs 3 ounces (85 grams).

Removal Procedure

1. Remove rear seat.
2. Locate sensor on center drive tunnel. Cut carpet and roll back to access sensor.
3. Release clips to disconnect wiring harness. Remove two bolts to release the sensor.

Estimated average removal time is 30 minutes (assuming need to remove rear seat); 7 minutes (rear seat already removed).

Figure 5: Daimler-Chrysler ABS Sensor.

Note: A variety of factors could complicate the removal process. Vehicles which have been involved in accidents which prevent easy access to interiors would require additional time. However, for vehicles with rear seats already removed, removal times would be similar to those for Ford products.

1999 Ford Explorer

Three 4-wheel drive Ford models (Explorer, Navigator and Ranger) which are sold in the United States were produced for varying periods of time in the 1990s. The sensor contains three 1-gram mercury switch capsules embedded in a solid plastic component. The entire component (with mounting bolts) weighs 4.25 ounces (120 grams).

Removal Procedure

1. Place vehicle on lift.
2. Locate sensor on left frame rail under the driver's seat.
3. Release clips to disconnect wiring harness. Remove two bolts to release the sensor.

Estimated average removal time is 15 minutes (assuming vehicle is not already on the lift for fluid drains). If already on the lift, the time would be halved (7 minutes).

Figure 6: ABS G-Force sensor—Ford.

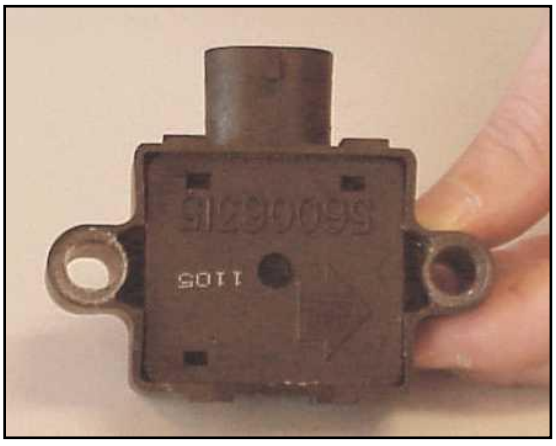


Figure 7: ABS G-Force sensor—Jeep.

Background Environmental Information

Why remove the switches?

Mercury is released into the environment when mercury light switches from the hoods and trunks of vehicles are not removed prior to crushing and shredding.

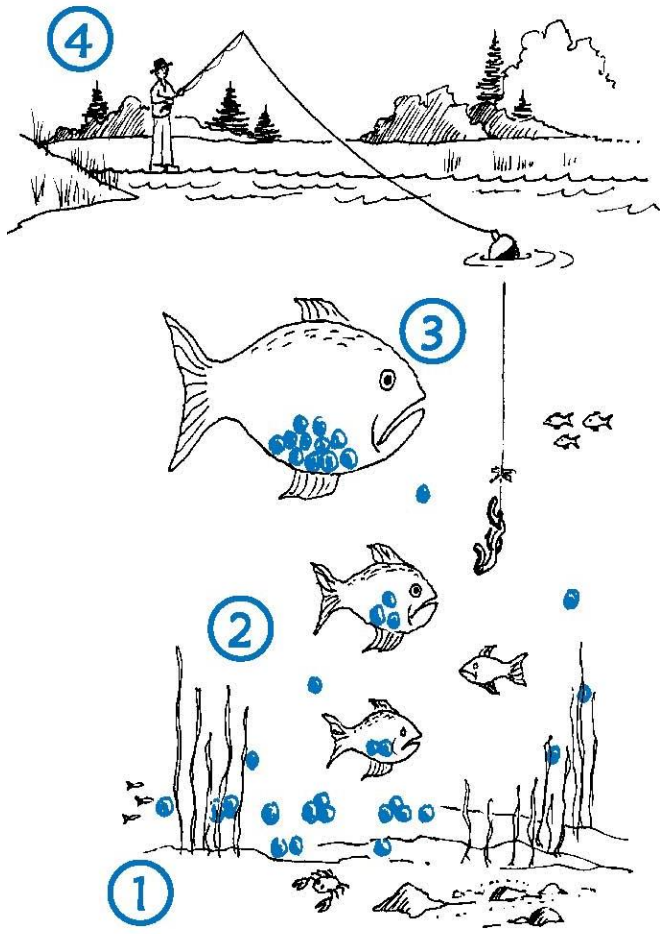
Mercury is a persistent bioaccumulative toxin (PBT). It is highly toxic to humans (especially children) and the environment. It accumulates in the tissue of fish and other organisms in mercury contaminated water and is carried up the food chain to humans.

How does mercury get into fish?

Once in a lake or river, mercury is converted to methylmercury by bacteria and other processes. Fish absorb methylmercury from their food and from water as it passes over their gills. Mercury is tightly bound to proteins in all fish tissue, including muscle. **There is no method of cooking or cleaning fish that will reduce the amount of mercury in a meal.**

Methylmercury accumulates as you move up the food chain:

1. Methylmercury in the water and sediment is taken up by tiny animals and plants known as plankton.
2. Small fishes eat large quantities of plankton over time.
3. Large predatory fish consume many smaller fish, accumulating methylmercury in their tissues. The older and larger the fish, the greater the potential for high mercury levels in their bodies.
4. Fish are caught and eaten by humans and animals, causing methylmercury to accumulate in their tissues.



● = represents methylmercury

Poison Pathway: Mercury Pollution from Cars

Where is the mercury in cars?

- Mercury can be found in HID headlights and some dashboard lights.
- 88 percent of the mercury in cars is found in convenience light switches like those under the hood and trunk.
- 10 percent of the mercury is found in ABS sensors.
- There are about 1,700 pounds of mercury in Washington's cars!

Crushing

- Cars are crushed at auto recycling facilities and sent to be shredded.

Shredding

When an auto is shredded:

- 7 percent of the car's mercury is released directly into the air.
- 53 percent is in the non-metal fluff wastes sent to landfills, where it escapes into the air.
- 40 percent is in the baled scrap metal sent to smelters for steel recycling.

Smelting

- Smelters that recycle scrap metal from cars are the fourth largest source of mercury air emissions in the United States.

Polluting

- Airborne mercury fallout enters the environment of Washington State.

Sources

Maine DEP, A Plan to Reduce Mercury Releases from Motor Vehicles in Maine, January 2002.

Ecology Center, Great Lakes United, University of Tennessee Center for Clean Products & Clean Technologies, Toxics in Vehicles; Mercury, Jan. 2001.

Mercury Spill Cleanup Procedures

When removing mercury light switches from vehicles, be careful the metal pellet containing the liquid mercury does not break. There have been rare occasions documented in the past, but you should be prepared just in case. A potential spill would be expected to be very small — less than an ounce.

For small mercury spills:

1. Evacuate the spill area

Restrict access only to those people needed for cleanup activities. Before people leave the area, be sure that their clothing and shoes have not been splashed or otherwise contaminated by the mercury.

2. Contain the spill

Prevent mercury from spreading onto porous surfaces, cracks in the floor or drains.

3. Isolate the spill area

Interior ventilating or air conditioning systems should be shut off and interior doors should be closed to prevent vapors from circulating to other interior areas.

4. Lower the temperature in the spill area, if possible

The concentration of mercury vapors will increase with higher temperatures.

5. Ventilate the spill area

Fans should be used to force ventilation with outside air during cleanup and for an hour following cleanup.

6. Dress appropriately for cleanup

Remove watches and jewelry from hands and wrists (mercury will combine with precious metals). Wear old clothing and shoes that can be discarded if they become contaminated. Put on latex gloves and goggles or safety glasses.

7. Use appropriate equipment and materials for cleanup

Mercury spill kits are available commercially, but they are not absolutely necessary.

- **IMPORTANT: Never use a household vacuum or shop vac to clean up mercury.**

A. All visible mercury droplets must be collected. A bright light on the spill area will help identify small mercury droplets.

B. Use a plastic squeegee or index card to push droplets toward the center of the spill area and away from carpet or other porous surfaces. Slide the pooled mercury onto a plastic dustpan or rigid piece of paper.

- **IMPORTANT: Never use a broom on a mercury spill.**

C. Carefully transfer the mercury from the dustpan into a plastic, sealable container (for example, a 35 mm film canister).

- **IMPORTANT: Never pour mercury or mercury-contaminated liquids into a sink or down a drain.**

D. Place the plastic container into a zip-lock type plastic bag or a large plastic container with lid (e.g., Tupperware).

E. Use an eye dropper, syringe (without needle), or adhesive tape to collect any remaining visible droplets of mercury, placing contaminated tape in the zip lock bag or plastic container.

F. Sprinkle powdered sulfur or zinc over the spill area to identify and bind any remaining mercury. Powdered sulfur will turn from yellow to reddish brown as it binds with mercury, making the mercury easier to detect and less likely to emit vapors. Powdered zinc will also bind mercury making it easier to collect and less likely to emit vapors.

G. Remove and dispose of any carpet or fabric (including clothing) that has been contaminated with mercury. Double or triple wrap items in plastic trash bags and contact your waste disposal contractor for proper disposal instructions.

- **IMPORTANT: Do not place mercury contaminated materials in the trash unless instructed to do so by proper authorities.**

H. Label bags or containers of mercury wastes with “Elemental Mercury: Universal Waste” and contact the Department of Ecology or your local county health department or solid waste department for proper disposal procedures.

Construct a Mercury Spill Kit

Mercury spill kits are commercially available, but they are not absolutely necessary. The following are common items that can be used to construct your own mercury spill kit. The spill kit should be assembled prior to conducting any activities involving elemental mercury. It should be available for use in the area where spills might occur. Supplies in the kit should be replaced as they are used.

- Latex gloves
- Wide adhesive tape (duct or masking)
- Eye dropper (plastic or glass) or syringe (without needle)
- Plastic trash bags
- Goggles or safety glasses
- Powdered zinc*
- Plastic containers with lids (large and small)
- Powdered sulfur*
- “Zip Lock” type plastic bags (gallon size)
- Box, bucket or other container to store items.
- Plastic dust pan

* Items can be obtained from most laboratory or safety supply companies.

Guidance on Handling Glass Mercury Switches in Volvos and Audis

The mercury switches in Volvo and Audi convenience lights are unique in that the mercury is usually encased in glass rather than metal.

IMPORTANT: Leave the glass capsule in the assembly and put the whole assembly in the bucket along with the other assemblies.

If you have already removed a glass pellet from a Volvo or Audi switch assembly, **do not mix the glass pellet in the collection bucket with the metal-encased mercury switches from the other vehicles.** If you do and the glass breaks, the entire bucket of switches will be contaminated and must then be handled as hazardous waste.

To avoid this costly result, manage glass pellets that have been removed as follows:

- Put the glass pellets in a sturdy plastic bag.
- Put the bag and glass pellets in a rigid plastic container that can be sealed. A recycled food storage container with a screw top or snap-on lid will do.
- Fill up the plastic container with bubble wrap, sawdust, cat litter or other packing material to minimize the risk of breakage.
- Place the container on top of the other mercury switch assemblies in the 3 ½ gallon bucket.

Volvo ceased using mercury convenience light switches after model year 1991. Prior to that, the switches were used in Volvo engine and luggage compartment lights at least as far back as model year 1975 and in make-up mirror lights on 1986 through 1991 Volvos. Audi reportedly used the glass mercury switches in engine compartment lights on its 1992 and earlier vehicles.

Resources

Managing Mercury Switches, Minnesota Pollution Control Agency.

Mercury Switch Project, New York State Department of Environmental Conservation.

Clean Car Campaign, Ecology Center, Michigan.

Mercury Switch Removal from Motor Vehicles in Maine, Report 2005, and *Auto Dismantlers Guide to Recycling Mercury Switches*, Maine, Department of Environmental Protection.

Managing Mercury Switches: Information for Vehicle Dismantlers and Crushers, Oregon Department of Environmental Quality.

Clean Air Foundation Switch-Out Program, Ontario, Canada.

Study of Recovering Mercury Switches from End of Life Vehicles, Recycling Council of Ontario for Environment Canada.

A Quick Guide for Removing and Recycling Mercury Switches, End of Life Vehicle Solutions (ELVS), www.elvsolutions.org.